

LAA Project No. 2023-33
Date: January 18, 2024

Owner:

People Inc.
1219 N. Forest Road
Williamsville, New York 14221

Specifications of Materials and Labor for:

Interior Addition at
4205 Sheridan Drive
Amherst, NY 14221

Drawings:

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Architect:



8855 Sheridan Drive, Williamsville, New York 14221
(716) 833-1873 | longassociates@gmail.com

The building will be open for contractor inspection on
Tuesday - February 6th, 2024 from 10:00 AM to 2:00 PM.
This will be the only time for an inspection, no exceptions.

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AIA® Document A701™ – 1997

Instructions to Bidders

for the following PROJECT:

(Name and location or address)

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

THE OWNER:

(Name, legal status and address)

THE ARCHITECT:

(Name, legal status and address)

Long Associates Architects, PLLC

189 Kenmore Avenue

Buffalo, New York 14223

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ARTICLE 1 DEFINITIONS

§ 1.1 Bidding Documents include the Bidding Requirements and the proposed Contract Documents. The Bidding Requirements consist of the Advertisement or Invitation to Bid, Instructions to Bidders, Supplementary Instructions to Bidders, the bid form, and other sample bidding and contract forms. The proposed Contract Documents consist of the form of Agreement between the Owner and Contractor, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications and all Addenda issued prior to execution of the Contract.

§ 1.2 Definitions set forth in the General Conditions of the Contract for Construction, AIA Document A201™, or in other Contract Documents are applicable to the Bidding Documents.

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

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

§ 1.5 The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base, to which Work may be added or from which Work may be 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 or deducted from the amount of the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.

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

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

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

ARTICLE 2 BIDDER'S REPRESENTATIONS

§ 2.1 The Bidder by making a Bid represents that:

§ 2.1.1 The Bidder has read and understands the Bidding Documents or Contract Documents, to the extent that such documentation relates to the Work for which the Bid is submitted, and for other portions of the Project, if any, being bid concurrently or presently under construction.

§ 2.1.2 The Bid is made in compliance with the Bidding Documents.

§ 2.1.3 The Bidder has visited the site, become familiar with local conditions under which the Work is to be performed and has correlated the Bidder's personal observations with the requirements of the proposed Contract Documents.

§ 2.1.4 The Bid is based upon the materials, equipment and systems required by the Bidding Documents without exception.

ARTICLE 3 BIDDING DOCUMENTS

§ 3.1 Copies

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

§ 3.1.2 Bidding Documents will not be issued directly to Sub-bidders unless specifically offered in the Advertisement or Invitation to Bid, or in supplementary instructions to bidders.

§ 3.1.3 Bidders shall use complete sets of Bidding Documents in preparing Bids; neither the Owner nor Architect assumes responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

§ 3.1.4 The Owner and Architect may make copies of the Bidding Documents available on the above terms for the purpose of obtaining Bids on the Work. No license or grant of use is conferred by issuance of copies of the Bidding Documents.

§ 3.2 Interpretation or Correction of Bidding Documents

§ 3.2.1 The Bidder shall carefully study and compare the Bidding Documents with each other, and with other work being bid concurrently or presently under construction to the extent that it relates to the Work for which the Bid is submitted, shall examine the site and local conditions, and shall at once report to the Architect errors, inconsistencies or ambiguities discovered.

§ 3.2.2 Bidders and Sub-bidders requiring clarification or interpretation of the Bidding Documents shall make a written request which shall reach the Architect at least seven days prior to the date for receipt of Bids.

§ 3.2.3 Interpretations, corrections and changes of the Bidding Documents will be made by Addendum. Interpretations, corrections and changes of the Bidding Documents made in any other manner will not be binding, and Bidders shall not rely upon them.

§ 3.3 Substitutions

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

§ 3.3.2 No substitution will be considered prior to receipt of Bids unless written request for approval has been received by the Architect at least ten days prior to the date for receipt of Bids. Such requests shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitution including drawings, performance and test data, and other information necessary for an evaluation. A statement setting forth changes in other materials, equipment or other portions of the Work, including changes in the work of other contracts that incorporation of the proposed substitution would require, shall be included. The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.

§ 3.3.3 If the Architect approves a proposed substitution prior to receipt of Bids, such approval will be set forth in an Addendum. Bidders shall not rely upon approvals made in any other manner.

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

§ 3.4 Addenda

§ 3.4.1 Addenda will be transmitted to all who are known by the issuing office to have received a complete set of Bidding Documents.

§ 3.4.2 Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.

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

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

ARTICLE 4 BIDDING PROCEDURES

§ 4.1 Preparation of Bids

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

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

§ 4.1.3 Sums shall be expressed in both words and figures. In case of discrepancy, the amount written in words shall govern.

§ 4.1.4 Interlineations, alterations and erasures must be initialed by the signer of the Bid.

§ 4.1.5 All requested Alternates shall be bid. If no change in the Base Bid is required, enter “No Change.”

§ 4.1.6 Where two or more Bids for designated portions of the Work have been requested, the Bidder may, without forfeiture of the bid security, state the Bidder’s refusal to accept award of less than the combination of Bids stipulated by the Bidder. The Bidder shall make no additional stipulations on the bid form nor qualify the Bid in any other manner.

§ 4.1.7 Each copy of the Bid shall state the legal name of the Bidder and the nature of legal form of the Bidder. The Bidder shall provide evidence of legal authority to perform within the jurisdiction of the Work. Each copy shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further give the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current power of attorney attached certifying the agent’s authority to bind the Bidder.

§ 4.2 Bid Security

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

§ 4.2.2 If a surety bond is required, it shall be written on AIA Document A310™, Bid Bond, unless otherwise provided in the Bidding Documents, and the attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of the power of attorney.

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

§ 4.3 Submission of Bids

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

§ 4.3.2 Bids shall be deposited at the designated location prior to the time and date for receipt of Bids. Bids received after the time and date for receipt of Bids will be returned unopened.

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

§ 4.3.4 Oral, telephonic, telegraphic, facsimile or other electronically transmitted bids will not be considered.

§ 4.4 Modification or Withdrawal of Bid

§ 4.4.1 A Bid may not be modified, withdrawn or canceled by the Bidder during the stipulated time period following the time and date designated for the receipt of Bids, and each Bidder so agrees in submitting a Bid.

§ 4.4.2 Prior to the time and date designated for receipt of Bids, a Bid submitted may be modified or withdrawn by notice to the party receiving Bids at the place designated for receipt of Bids. Such notice shall be in writing over the signature of the Bidder. Written confirmation over the signature of the Bidder shall be received, and date- and time-stamped by the receiving party on or before the date and time set for receipt of Bids. A change shall be so worded as not to reveal the amount of the original Bid.

§ 4.4.3 Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids provided that they are then fully in conformance with these Instructions to Bidders.

§ 4.4.4 Bid security, if required, shall be in an amount sufficient for the Bid as resubmitted.

ARTICLE 5 CONSIDERATION OF BIDS

§ 5.1 Opening of Bids

At the discretion of the Owner, if stipulated in the Advertisement or Invitation to Bid, the properly identified Bids received on time will be publicly opened and will be read aloud. An abstract of the Bids may be made available to Bidders.

§ 5.2 Rejection of Bids

The Owner shall have the right to reject any or all Bids. A Bid not accompanied by a required bid security or by other data required by the Bidding Documents, or a Bid which is in any way incomplete or irregular is subject to rejection.

§ 5.3 Acceptance of Bid (Award)

§ 5.3.1 It is the intent of the Owner to award a Contract to the lowest qualified Bidder provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed the funds available. The Owner shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the Owner's judgment, is in the Owner's own best interests.

§ 5.3.2 The Owner shall have the right to accept Alternates in any order or combination, unless otherwise specifically provided in the Bidding Documents, and to determine the low Bidder on the basis of the sum of the Base Bid and Alternates accepted.

ARTICLE 6 POST-BID INFORMATION

§ 6.1 Contractor's Qualification Statement

Bidders to whom award of a Contract is under consideration shall submit to the Architect, upon request, a properly executed AIA Document A305™, Contractor's Qualification Statement, unless such a Statement has been previously required and submitted as a prerequisite to the issuance of Bidding Documents.

§ 6.2 Owner's Financial Capability

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

§ 6.3 Submittals

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

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

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

§ 6.3.3 Prior to the execution of the Contract, the Architect will notify the Bidder in writing if either the Owner or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner or Architect has reasonable objection to a proposed person or entity, the Bidder may, at the Bidder's option, (1) withdraw the Bid or (2) submit an acceptable substitute person or entity with an adjustment in the Base Bid or Alternate Bid to cover the difference in cost occasioned by such substitution. The Owner may accept the adjusted bid price or disqualify the Bidder. In the event of either withdrawal or disqualification, bid security will not be forfeited.

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

ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND

§ 7.1 Bond Requirements

§ 7.1.1 If stipulated in the Bidding Documents, the Bidder shall furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Bonds may be secured through the Bidder's usual sources.

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

§ 7.1.3 If the Owner requires that bonds be secured from other than the Bidder's usual sources, changes in cost will be adjusted as provided in the Contract Documents.

§ 7.2 Time of Delivery and Form of Bonds

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

§ 7.2.2 Unless otherwise provided, the bonds shall be written on AIA Document A312™, Performance Bond and Payment Bond. Both bonds shall be written in the amount of the Contract Sum.

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

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

ARTICLE 8 FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

Unless otherwise required in the Bidding Documents, the Agreement for the Work will be written on AIA Document A101™, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum.

INSTRUCTIONS TO BIDDERS

1. BID DATE:

Sealed bids will be received by the Owner at

3:00 PM local time on Friday, February 23rd, 2024

**e-mail to jdulinawka@people-inc.org and
jsalas@pepole-inc.org**

Please also e-mail the architect a copy at: matt@longassociatesarchitects.com

ADDRESS PROPOSAL TO:

People Inc.

1219 North Forest Rd.

Williamsville, New York

ATTENTION: Jeff Dulinawka, Vice President Facilities Management at People Inc.

2. FORM OF PROPOSAL:

A. Proposals shall be made upon the form provided thereof and all blank spaces in the form shall be fully filled; numbers shall be stated both in writing and in figures; the signature shall be in long-hand; and the completed form shall be without interlineation, alteration, or erasure.

B. Proposals shall be addressed to the Owner and enclosed in an opaque sealed envelope addressed to him, marked "Personal", and bearing the title of the work and the name of the Bidder.

3. INTERPRETATION OF DRAWINGS:

A. Should a Bidder find discrepancies in, or omissions from, the Drawings or Documents; or should he be in doubt as to their meaning; he should at once notify the Architect, who will send a written instruction to all Bidders. Neither Owner nor Architect will be responsible for any oral instructions.

4. AWARD OF CONTRACT:

A. The competency and responsibility of Bidders and of their Proposed Subcontractors will be considered in making the award. The Owner DOES NOT obligate himself to accept the lowest or any other bid.

5. ADDENDA:

A. Any addenda issued during the time of bidding are to be covered in the proposal, and in closing a contract they will become a part thereof.

6. COMPLETION DATE:

A. Completion Date of all work by the Contractor shall be
Ninety Days.....(90 Days)
after a signed agreement is given by the Owner and
building permits are obtained.

7. TIME OF COMPLETION:

A. The Contractor is warned that time is of the essence of this contract and that physical completion of the work must meet the time specified.

8. NON-COLLUSIVE BIDDING CERTIFICATE:

A. Attention of all Bidders is called to provisions of State Law now requiring the bid itself to contain a certificate that there has been no collusion in the preparation or submittal of such bid.

9. SCHEDULE OF CONTRACT DOCUMENTS:

DRAWINGS:

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10. The Bid Proposal shall remain in effect for a period of NINETY (90) DAYS from the Proposal Date.

11. A Performance and Labor and Material Bond and Bid Bond is not required.

12. Contractors are to be aware that houses are to remain fully occupied during renovations. Work shall occur during standard business hours of 7:30 AM–4:30 PM.

13. Contractor to provide a material and labor cost breakdown by property and trade which will become a part of the bid proposal form.

END OF SECTION

AIA® Document A201™ – 2007

General Conditions of the Contract for Construction

for the following PROJECT:

(Name and location or address)

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

THE OWNER:

(Name, legal status and address)

THE ARCHITECT:

(Name, legal status and address)

Long Associates Architects, PLLC

189 Kenmore Avenue

Buffalo, New York 14223

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 BASIC DEFINITIONS

§ 1.1.1 THE CONTRACT DOCUMENTS

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

§ 1.1.2 THE CONTRACT

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

§ 1.1.3 THE WORK

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

§ 1.1.4 THE PROJECT

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

§ 1.1.5 THE DRAWINGS

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

§ 1.1.6 THE SPECIFICATIONS

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

§ 1.1.7 INSTRUMENTS OF SERVICE

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

§ 1.1.8 INITIAL DECISION MAKER

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2 and certify termination of the Agreement under Section 14.2.2.

§ 1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

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

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

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

§ 1.3 CAPITALIZATION

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

§ 1.4 INTERPRETATION

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

§ 1.5 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE

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

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

§ 1.6 TRANSMISSION OF DATA IN DIGITAL FORM

If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall endeavor to establish necessary protocols governing such transmissions, unless otherwise already provided in the Agreement or the Contract Documents.

ARTICLE 2 OWNER

§ 2.1 GENERAL

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

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

§ 2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

§ 2.2.1 Prior to commencement of the Work, the Contractor may request in writing that the Owner provide reasonable evidence that the Owner has made financial arrangements to fulfill the Owner’s obligations under the Contract. Thereafter, the Contractor may only request such evidence if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) a change in the Work materially changes the Contract Sum; or (3) the Contractor identifies in writing a reasonable concern regarding the Owner’s ability to make payment when due. The Owner shall furnish such evidence as a condition precedent to commencement or continuation of the Work or the portion of the Work affected by a material change. After the Owner furnishes the evidence, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.2 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.

§ 2.2.3 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

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

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

§ 2.3 OWNER'S RIGHT TO STOP THE WORK

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

§ 2.4 OWNER'S RIGHT TO CARRY OUT THE WORK

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

ARTICLE 3 CONTRACTOR

§ 3.1 GENERAL

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

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

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

§ 3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

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

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.2.3, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the 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 make 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 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, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to the Owner and Architect and shall not proceed with that portion of the Work without further written instructions from the Architect. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any loss or damage arising solely from those Owner-required means, methods, techniques, sequences or procedures.

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

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

§ 3.4 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 authorized by the Architect in accordance with Sections 3.12.8 or 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

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

§ 3.5 WARRANTY

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

§ 3.6 TAXES

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

§ 3.7 PERMITS, FEES, NOTICES AND COMPLIANCE WITH LAWS

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

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

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

§ 3.7.4 CONCEALED OR UNKNOWN CONDITIONS

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 21 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 an equitable adjustment 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 in writing, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may proceed as provided in Article 15.

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

§ 3.8 ALLOWANCES

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

§ 3.8.2 Unless otherwise provided in the Contract Documents:

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

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

§ 3.9 SUPERINTENDENT

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

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

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

§ 3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

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

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

§ 3.11 DOCUMENTS AND SAMPLES AT THE SITE

The Contractor shall maintain at the site for the Owner one copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and one copy of approved Shop Drawings, Product Data, Samples and similar required submittals. These shall be available to the Architect and shall be delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

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

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

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

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

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

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

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

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

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

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. The Contractor shall not be required to provide professional services in violation of applicable law. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled

to rely upon the adequacy, accuracy and completeness of the services, certifications and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review, approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance and design criteria specified in the Contract Documents.

§ 3.13 USE OF SITE

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

§ 3.14 CUTTING AND PATCHING

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

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

§ 3.15 CLEANING UP

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

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

§ 3.16 ACCESS TO WORK

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

§ 3.17 ROYALTIES, PATENTS AND COPYRIGHTS

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

§ 3.18 INDEMNIFICATION

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

other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

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

ARTICLE 4 ARCHITECT

§ 4.1 GENERAL

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

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

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

§ 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, except as provided in Section 3.3.1.

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

§ 4.2.4 COMMUNICATIONS FACILITATING CONTRACT ADMINISTRATION

Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate with each other through the Architect about matters arising out of or relating to the Contract. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.

§ 4.2.5 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 13.5.2 and 13.5.3, whether or not such Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 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, unless otherwise specifically stated by the Architect, of any construction means, methods, techniques, sequences or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

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

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

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more project representatives to assist in carrying out the Architect's responsibilities at the site. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents.

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

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

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

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

ARTICLE 5 SUBCONTRACTORS

§ 5.1 DEFINITIONS

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

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

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

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

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

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

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

§ 5.3 SUBCONTRACTUAL RELATIONS

By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor’s Work, which the Contractor, by these Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise 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 in writing; 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 such assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

§ 6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided in Article 15.

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

§ 6.1.3 The 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 other separate contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to the construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, separate contractors and the Owner until subsequently revised.

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

§ 6.2 MUTUAL RESPONSIBILITY

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

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a separate contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Architect apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgment that the Owner's or separate contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

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

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

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

§ 6.3 OWNER'S RIGHT TO CLEAN UP

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

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 GENERAL

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

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

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

§ 7.2 CHANGE ORDERS

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

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

§ 7.3 CONSTRUCTION CHANGE DIRECTIVES

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

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

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

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 As provided in Section 7.3.7.

§ 7.3.4 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed in a proposed Change Order or Construction Change Directive so that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

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

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

§ 7.3.7 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the method and the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.7 shall be limited to the following:

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

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the 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 has authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes will be effected by written order signed by the Architect and shall be binding on the Owner and Contractor.

ARTICLE 8 TIME

§ 8.1 DEFINITIONS

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

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

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

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

§ 8.2 PROGRESS AND COMPLETION

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

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be

furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance.

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

§ 8.3 DELAYS AND EXTENSIONS OF TIME

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner or Architect, or of an employee of either, or of a separate contractor employed by the Owner; or by changes ordered in the Work; or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control; or by delay authorized by the Owner pending mediation and arbitration; or by other causes that the Architect determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine.

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

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

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 CONTRACT SUM

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

§ 9.2 SCHEDULE OF VALUES

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

§ 9.3 APPLICATIONS FOR PAYMENT

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to payment as the Owner or Architect may require, such as copies of requisitions from Subcontractors and material suppliers, and shall reflect retainage if provided for in the Contract Documents.

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

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

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

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the

Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

§ 9.4 CERTIFICATES FOR PAYMENT

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

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

§ 9.5 DECISIONS TO WITHHOLD CERTIFICATION

§ 9.5.1 The 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 for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a separate contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.

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

§ 9.5.3 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 material or equipment suppliers 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 Architect will reflect such payment on the next Certificate for Payment.

§ 9.6 PROGRESS PAYMENTS

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

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

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

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

§ 9.6.5 Contractor payments to material and equipment 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 and 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, shall create any fiduciary liability or tort liability on the part of the Contractor for breach of trust or shall entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 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' written notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 SUBSTANTIAL COMPLETION

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

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

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

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

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

§ 9.9 PARTIAL OCCUPANCY OR USE

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer as required under Section 11.3.1.5 and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

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

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

§ 9.10 FINAL COMPLETION AND FINAL PAYMENT

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

§ 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 and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. 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. If such lien 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 such lien, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed 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 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; or
- .3 terms of special warranties required by the Contract Documents.

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

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 SAFETY PRECAUTIONS AND PROGRAMS

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

§ 10.2 SAFETY OF PERSONS AND PROPERTY

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

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

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

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

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

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

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

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

§ 10.2.8 INJURY OR DAMAGE TO PERSON OR PROPERTY

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

§ 10.3 HAZARDOUS MATERIALS

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

§ 10.3.2 Upon receipt of the Contractor's written notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. 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 such material or substance or who are to perform the task of removal or safe containment of such 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 in the amount of the Contractor's reasonable additional costs of shut-down, 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 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 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 indemnify the Owner for the cost and expense the Owner incurs (1) for remediation of a material or substance the Contractor brings to the site 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 indemnify the Contractor for all cost and expense thereby incurred.

§ 10.4 EMERGENCIES

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

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 CONTRACTOR'S LIABILITY INSURANCE

§ 11.1.1 The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations and completed operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- .1 Claims under workers' compensation, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed;
- .2 Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
- .3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
- .4 Claims for damages insured by usual personal injury liability coverage;
- .5 Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- .6 Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;
- .7 Claims for bodily injury or property damage arising out of completed operations; and
- .8 Claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18.

§ 11.1.2 The insurance required by Section 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

§ 11.1.3 Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies required by this Section 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment as required by Section 9.10.2 and thereafter upon renewal or replacement of such coverage until the expiration of the time required by Section 11.1.2. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness.

§ 11.1.4 The Contractor shall cause the commercial liability coverage required by the Contract Documents to include (1) the Owner, the Architect and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations.

§ 11.2 OWNER'S LIABILITY INSURANCE

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

§ 11.3 PROPERTY INSURANCE

§ 11.3.1 Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's

risk “all-risk” or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract Modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 11.3 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project.

§ 11.3.1.1 Property insurance shall be on an “all-risk” or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect’s and Contractor’s services and expenses required as a result of such insured loss.

§ 11.3.1.2 If the Owner does not intend to purchase such property insurance required by the Contract and with all of the coverages in the amount described above, the Owner shall so inform the Contractor in writing prior to commencement of the Work. The Contractor may then effect insurance that will protect the interests of the Contractor, Subcontractors and Sub-subcontractors in the Work, and by appropriate Change Order the cost thereof shall be charged to the Owner. If the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain insurance as described above, without so notifying the Contractor in writing, then the Owner shall bear all reasonable costs properly attributable thereto.

§ 11.3.1.3 If the property insurance requires deductibles, the Owner shall pay costs not covered because of such deductibles.

§ 11.3.1.4 This property insurance shall cover portions of the Work stored off the site, and also portions of the Work in transit.

§ 11.3.1.5 Partial occupancy or use in accordance with Section 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

§ 11.3.2 BOILER AND MACHINERY INSURANCE

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

§ 11.3.3 LOSS OF USE INSURANCE

The Owner, at the Owner’s option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner’s property due to fire or other hazards, however caused. The Owner waives all rights of action against the Contractor for loss of use of the Owner’s property, including consequential losses due to fire or other hazards however caused.

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

§ 11.3.5 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, the Owner shall waive all rights in accordance with the terms of Section 11.3.7 for damages caused by fire or other causes of loss covered by this separate property insurance. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

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

§ 11.3.7 WAIVERS OF SUBROGATION

The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors described in Article 6, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to this Section 11.3 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors described in Article 6, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

§ 11.3.8 A loss insured under the Owner's property insurance 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 11.3.10. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

§ 11.3.9 If required in writing by a party in interest, the Owner as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Owner's duties. The cost of required bonds shall be charged against proceeds received as fiduciary. The Owner shall deposit in a separate account proceeds so received, which the Owner shall distribute in accordance with such agreement as the parties in interest may reach, or as determined in accordance with the method of binding dispute resolution selected in the Agreement between the Owner and Contractor. If after such loss no other special agreement is made and unless the Owner terminates the Contract for convenience, replacement of damaged property shall be performed by the Contractor after notification of a Change in the Work in accordance with Article 7.

§ 11.3.10 The Owner as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power; if such objection is made, the dispute shall be resolved in the manner selected by the Owner and Contractor as the method of binding dispute resolution in the Agreement. If the Owner and Contractor have selected arbitration as the method of binding dispute resolution, the Owner as fiduciary shall make settlement with insurers or, in the case of a dispute over distribution of insurance proceeds, in accordance with the directions of the arbitrators.

§ 11.4 PERFORMANCE BOND AND PAYMENT BOND

§ 11.4.1 The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract.

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

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 UNCOVERING OF WORK

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

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be at the Owner's expense. If such Work is not in accordance with the Contract Documents, such costs and the cost of correction shall be at the Contractor's expense unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

§ 12.2 CORRECTION OF WORK

§ 12.2.1 BEFORE OR AFTER SUBSTANTIAL COMPLETION

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

§ 12.2.2 AFTER SUBSTANTIAL COMPLETION

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so 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 2.4.

§ 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, whether completed or partially completed, of the Owner or separate contractors caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

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

§ 12.3 ACCEPTANCE OF NONCONFORMING WORK

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

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 GOVERNING LAW

The Contract shall be governed by the law of the place where the Project is located except that, if the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 SUCCESSORS AND ASSIGNS

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

§ 13.3 WRITTEN NOTICE

Written notice shall be deemed to have been duly served if delivered in person to the individual, to a member of the firm or entity, or to an officer of the corporation for which it was intended; or if delivered at, or sent by registered or certified mail or by courier service providing proof of delivery to, the last business address known to the party giving notice.

§ 13.4 RIGHTS AND REMEDIES

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

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

§ 13.5 TESTS AND INSPECTIONS

§ 13.5.1 Tests, inspections and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, 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 (1) tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded, and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating their cost to the Contractor.

§ 13.5.2 If the Architect, Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included under Section 13.5.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the 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 13.5.3, shall be at the Owner's expense.

§ 13.5.3 If such procedures for testing, inspection or approval under Sections 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure including those of repeated procedures and compensation for the Architect's services and expenses shall be at the Contractor's expense.

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

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

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

§ 13.6 INTEREST

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at such rate as the parties may 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.

§ 13.7 TIME LIMITS ON CLAIMS

The Owner and Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in the Agreement within the time 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 13.7.

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 or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency that requires all Work to be stopped;
- .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 promptly, upon the Contractor's request, reasonable evidence as required by Section 2.2.1.

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

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, including reasonable overhead and profit, costs incurred by reason of such termination, and damages.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor 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' written 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 for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the above reasons exist, the Owner, upon certification by the Initial Decision Maker that sufficient cause exists to justify such action, 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' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

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

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

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

§ 14.3 SUSPENSION BY THE OWNER FOR CONVENIENCE

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

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

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

§ 14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

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

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

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 CLAIMS

§ 15.1.1 DEFINITION

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim.

§ 15.1.2 NOTICE OF CLAIMS

Claims by either the Owner or Contractor must be initiated by written 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 must be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3 CONTINUING CONTRACT PERFORMANCE

Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents. The Architect will prepare Change Orders and issue Certificates for Payment in accordance with the decisions of the Initial Decision Maker.

§ 15.1.4 CLAIMS FOR ADDITIONAL COST

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

§ 15.1.5 CLAIMS FOR ADDITIONAL TIME

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

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

§ 15.1.6 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 15.1.6 shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 INITIAL DECISION

§ 15.2.1 Claims, excluding those arising under Sections 10.3, 10.4, 11.3.9, and 11.3.10, 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 arising prior to the date final payment is due, unless 30 days have passed after the Claim has been referred to the Initial Decision Maker with no 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 such 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 an initial decision, demand in writing that the other party file for mediation within 60 days of the initial decision. If such a demand is made and the party receiving the demand fails to file for mediation within the time required, 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 15.1.6 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 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 ARBITRATION

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

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

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

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

§ 15.4.4 CONSOLIDATION OR JOINDER

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

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

SUPPLEMENTARY CONDITIONS

Owner:

Owner has right to occupy the building and use parts at any time during construction.

Contractor:

No materials for the work shall be purchased by the contractor or any sub contractor subject to any chattel mortgage or under a conditional sale or other a agreement by which an interest is retained by the seller. The contractor warrants that he has good title to all materials use by him in the work.

Taxes:

The owner is a voluntary non-profit corporation exempt from payment of sales and compensating use taxes of the State of New York under existing laws.

Permits and Fees:

The contractor shall secure and pay for all building permit fees.
The contractor shall pay for all materials and sub contractors payments as per the agreement with owner.

Performance Bond and Labor and Material Bond:

No bonds are required on this project.

Contract sums:

The contract sum is stated in the Owner-Contractor Agreement to provide all material and labor to complete construction as per the contract documents.

Application for Payment:

The contractor shall be entitled on any such requisition to the total requested as approved by the architect less 10% holdback. The contractor shall furnish an affidavit certifying that all sub-contractors have been paid.

Insurances:

Workers Compensation; as required by NYS Law.

Comprehensive General Liability:

1,000,000 Each Occurrence

1,000,000 Aggregate, Products and Completed Operations

Property Damage:

2,000,000 Each Occurrence

Maintain 2 years after final payment.

Property Damage Liability:

Explosion

Collapse

Underground

Contractual Liability (Hold Harmless Coverage)

Bodily Injury:

1,000,000 each occurrence

Property Damage:

1,000,000 each occurrence

1,000,000 aggregate

Personal Injury with employment exclusion deleted

1,000,000 aggregate

Comprehensive Automobile Liability (owned, non-owned, hired)

Bodily Injury 1,000,000 combined single limit

Property Damage 1,000,000 each occurrence

Umbrella Liability Coverage 2,000,000

Builders risk Fire Insurance with Broad Form Extended Coverage and Vandalism and Mischief endorsements on a complete value basis covering the interest of the owner, contractor, sub contractors. The amount of insurance shall be sufficient to comply with the co-insurance requirements of the policy.

SECTION 04100 – BID FORM

1.01 TO:

- A. People Inc. (Owner)
1219 N. Forest Road
Williamsville, NY 14221

1.02 FOR:

- A. The intent of this Bid request is to obtain an offer to perform work for alterations at the existing group home – 4205 Sheridan Drive, Amherst, New York 14221, for a Stipulated Sum contract, in accordance with the Contract Documents. Long Associates Architects' Project No. 2023-33.

1.03 DATE: _____ (BIDDER TO ENTER DATE)

BID IS DUE ON OR BEFORE 3:00 PM on FRIDAY FEBRUARY 23rd, 2024.

1.04 SUBMITTED BY: (BIDDER TO ENTER NAME AND ADDRESS)

A. Bidder's Full Name _____

Address _____

City, State, Zip _____

1.05 OFFER

- A. Having examined the Place of The Work and all matters referred to in the Instructions to Bidders and the Contract Documents prepared by Long Associates Architects PLLC for the above mentioned project, we, the undersigned, hereby offer to enter into a Contract to perform the Work for the Sum of:

B. _____ dollars

(\$ _____), in lawful money of the United States of America.

- C. All applicable federal taxes are included and State of New York taxes are included in the Bid Sum.

1.06 ACCEPTANCE

- A. This offer shall be open to acceptance and is irrevocable for thirty days from the bid closing date.
- B. If this bid is accepted by Owner within the time period stated above, we will:
1. Execute the Agreement within seven days of receipt of Notice of Award.
 2. Furnish the required bonds within seven days of receipt of Notice of Award.
 3. Commence work within seven days after written Notice to Proceed of this bid. Contractors shall assume a Notice to Proceed within 30 days of an accepted bid.

1.07 CONTRACT TIME

- A. If this Bid is accepted, we will:
- B. Substantially Complete the Work within 90 calendar days of obtaining a permit.

**1.08 BID FORM
SUPPLEMENTS**

- A. The following Supplements are attached to this Bid Form and are considered an integral part of this Bid Form:
 - 1. Construction Schedule submitted in an AIA G703 format for each address as well as and AIA G703 format for total bid.
 - 2. Provide current certificate of insurance with limits matching supplementary conditions requirements.

1.9 BID FORM SIGNATURE(S)

- A. The Corporate Seal of
- B. _____
- C. (Bidder - print the full name of your firm)
- D. was hereunto affixed in the presence of:
- E. _____
- F. (Authorized signing officer, Title)
- G. (Seal)
- H. _____
- I. (Authorized signing officer, Title)

**1.10 IF THE BID IS A JOINT VENTURE OR PARTNERSHIP, ADD ADDITIONAL
FORMS OF EXECUTION FOR EACH MEMBER OF THE JOINT VENTURE IN
THE APPROPRIATE FORM OR FORMS AS ABOVE.**

1.11 NON-COLLUSIVE BIDDING CERTIFICATE

A. By submission of this bid, the Bidder, and each person signing on behalf of the Bidder, certifies under penalty of perjury, that is the best of his or its knowledge and belief:

1. The prices in this bid have been arrived at independently, with no collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;
2. The prices which have been quoted in this bid have not been knowingly disclosed by the Bidder and will not knowingly be disclosed by the Bidder prior to the bid opening, directly or indirectly, to any other Bidder or to any competitor; and
3. No attempt has been made or will be made by the Bidder to induce any other person, partnership or corporation to submit a bid for the purpose of restricting competition.
4. If the Bidder is a corporation, this certificate is and shall be deemed to have been authorized by the Board of Directors of the Bidder, and such authorization is and shall be deemed to include the signing and submission of the bid and inclusion therein of the corporation.

B. Pursuant to 103-d, General Municipal Law, a bid shall not be considered for award nor shall any award be made where the above Non-Collusive Certificate paragraphs, have not been complied with, unless explained, justified, and legally excused in accordance with said law.

END OF BID FORM

SECTION 04373 – PROPOSED SCHEDULE OF VALUES FORM

1.01 THE FOLLOWING IS A COST BREAKDOWN REFERENCED IN THE BID SUBMITTED BY:

1.02 (BIDDER _____)

1.03 TO (OWNER) PEOPLE INC.

1.04 DATED _____ AND WHICH IS AN INTEGRAL PART OF THE BID FORM. ITEM DESCRIPTIONS

2.01 DIVISION (CSI FORMAT OR EQUAL) COST BREAKDOWN OF PROJECT BASE BID. BREAKDOWN SHALL INCLUDE ALL MAJOR CSI DIVISIONS AND ANY SUBSECTIONS THAT THE CONTRACTOR FEELS NECESSARY TO ADEQUATELY DEPICT MONETARY DISTRIBUTIONS.

PLEASE SUBMIT ON AIA G703 FORMAT OR SIMILAR BREAKDOWN FOR EACH ADDRESS. PLEASE ALSO SUBMIT FINAL G703 FORM FOR TOTAL BID OF ALL HOUSES. OWNER RESERVES THE RIGHT TO ASK FOR ADDITIONAL BREAKDOWN OF ITEMS, IF NEEDED, FROM THE AWARDED CONTRACTOR PRIOR TO THE FIRST PAYMENT APPLICATION.

LABOR AND MATERIALS FOR EACH DIVISION SHOULD BE CLEARLY BROKEN OUT BY HOUSE AND AS A JOB AS A TOTAL.

END OF SECTION 04373

AIA® Document A101™ – 2007

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)

Long Associates Architects, PLLC
189 Kenmore Avenue
Buffalo, New York 14223

The Owner and Contractor agree as follows.

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

AIA Document A201™–2007, 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.

Init.

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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 the date of this Agreement unless a different date is stated below or provision is made for the date to be fixed in a notice to proceed issued by the Owner.

(Insert the date of commencement if it differs from the date of this Agreement or, if applicable, state that the date will be fixed in a notice to proceed.)

If, prior to the commencement of the Work, the Owner requires time to file mortgages and other security interests, the Owner's time requirement shall be as follows:

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

§ 3.3 The Contractor shall achieve Substantial Completion of the entire Work not later than () days from the date of commencement, or as follows:
(Insert number of calendar days. Alternatively, a calendar date may be used when coordinated with the date of commencement. If appropriate, insert requirements for earlier Substantial Completion of certain portions of the Work.)

Portion of the Work

Substantial Completion Date

, subject to adjustments of this Contract Time as provided in the Contract Documents.
(Insert provisions, if any, for liquidated damages relating to failure to achieve Substantial Completion on time or for bonus payments for early completion of the Work.)

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

Dollars

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

§ 4.2 The Contract Sum is based upon the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:

(State the numbers or other identification of accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)

§ 4.3 Unit prices, if any:

(Identify and state the unit price; state quantity limitations, if any, to which the unit price will be applicable.)

Item

Units and Limitations

Price per Unit (\$0.00)

§ 4.4 Allowances included in the Contract Sum, if any:
(Identify allowance and state exclusions, if any, from the allowance price.)

Item

Price (\$0.00)

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 certified amount to the Contractor not later than the _____ day of the (same) (following) month. If an Application for Payment is received by the Architect after the application date fixed above, payment 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, unless objected to by the Architect, 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 Subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

- .1 Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Sum allocated to that portion of the Work in the schedule of values, less retainage of _____ percent (_____ %). Pending final determination of cost to the Owner of changes in the Work, amounts not in dispute shall be included as provided in Section 7.3.9 of AIA Document A201™–2007, General Conditions of the Contract for Construction;
- .2 Add 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), less retainage of _____ percent (_____ %);
- .3 Subtract the aggregate of previous payments made by the Owner; and
- .4 Subtract amounts, if any, for which the Architect has withheld or nullified a Certificate for Payment as provided in Section 9.5 of AIA Document A201–2007.

§ 5.1.7 The progress payment amount determined in accordance with Section 5.1.6 shall be further modified under the following circumstances:

- .1 Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to the full amount of the Contract Sum, less such amounts as the Architect shall determine for incomplete Work, retainage applicable to such work and unsettled claims; and
(Section 9.8.5 of AIA Document A201–2007 requires release of applicable retainage upon Substantial Completion of Work with consent of surety, if any.)
- .2 Add, if final completion of the Work is thereafter materially delayed through no fault of the Contractor, any additional amounts payable in accordance with Section 9.10.3 of AIA Document A201–2007.

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

(If it is intended, prior to Substantial Completion of the entire Work, to reduce or limit the retainage resulting from the percentages inserted in Sections 5.1.6.1 and 5.1.6.2 above, and this is not explained elsewhere in the Contract Documents, insert here provisions for such reduction or limitation.)

§ 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 Section 12.2.2 of AIA Document A201–2007, 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:

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 INITIAL DECISION MAKER

The Architect will serve as Initial Decision Maker pursuant to Section 15.2 of AIA Document A201–2007, unless the parties appoint below another individual, not a party to this Agreement, to serve as 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 Section 15.3 of AIA Document A201–2007, the method of binding dispute resolution shall be as follows:

(Check the appropriate box. If the Owner and Contractor do not select a method of binding dispute resolution below, 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.)

- ☐ Arbitration pursuant to Section 15.4 of AIA Document A201–2007
- ☐ Litigation in a court of competent jurisdiction
- ☐ Other: *(Specify)*

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 A201–2007.

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2007.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2007 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 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.)

§ 8.3 The Owner's representative:
(Name, address and other information)

§ 8.4 The Contractor's representative:
(Name, address and other information)

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

§ 8.6 Other provisions:

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 The Contract Documents, except for Modifications issued after execution of this Agreement, are enumerated in the sections below.

§ 9.1.1 The Agreement is this executed AIA Document A101–2007, Standard Form of Agreement Between Owner and Contractor.

§ 9.1.2 The General Conditions are AIA Document A201–2007, General Conditions of the Contract for Construction.

§ 9.1.3 The Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages
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§ 9.1.4 The Specifications:
(Either list the Specifications here or refer to an exhibit attached to this Agreement.)

Section	Title	Date	Pages
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Init.

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§ 9.1.5 The Drawings:

(Either list the Drawings here or refer to an exhibit attached to this Agreement.)

Number	Title	Date
--------	-------	------

§ 9.1.6 The Addenda, if any:

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

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

§ 9.1.7 Additional documents, if any, forming part of the Contract Documents:

.1 AIA Document E201™–2007, Digital Data Protocol Exhibit, if completed by the parties, or the following:

.2 Other documents, if any, listed below:

(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201–2007 provides that bidding requirements such as advertisement or invitation to bid, Instructions to Bidders, sample forms and the Contractor's bid are not part of the Contract Documents unless enumerated in this Agreement. They should be listed here only if intended to be part of the Contract Documents.)

ARTICLE 10 - INSURANCE AND BONDS
The Contractor shall purchase and maintain insurance and provide bonds as set forth in Article 11 of AIA Document A201-2007.

Limit of Liability or Bond Amount (\$0.00)

(Printed name and title)

SECTION 01010 - DESCRIPTION OF WORK

1.01 WORK TO BE DONE

a) The work to be done under the Contract, and in accordance with the Contract Documents, consists of performing, installing, furnishing and supplying of all materials, equipment, labor and incidentals necessary or convenient for the construction and the carrying out of all duties and obligations imposed upon the Contractor by the Contract Documents for:

Renovations to Existing Building:
4205 Sheridan Drive
Amherst, NY 14221

b) The main features of the work areas are as follows:

- Selective demolition at existing garage area and existing bedroom / bath as per drawings
- Update fire alarm systems (heat detectors, strobes, pull stations, etc.) at new work area
- New electrical including outlets, switches and lighting at work area tied into existing panel
- New split ducted HVAC heat pump system at new work with independent thermostat
- New plumbing work at reconstructed bathrooms
- Ceramic tile work
- Framing for exterior wall infill and new interior partitions
- Raised floor framing and sheathing at former garage area
- Batt insulation at work area ceiling, Blown-in cellulous insulation at floor, closed cell spray foam at walls.
- New windows and selective siding installation
- Vented soffit panel installation
- Other misc. work per drawings

1.03 CONTRACT

a) The work for this project will be for:

People Inc.
1219 N. Forest Road
Williamsville, New York

This is a non-profit organization, exempt from NYS sales taxes.

b) The work will be performed under one contract.

END OF SECTION

SECTION 01011 - GENERAL REQUIREMENTS

1.01 GENERAL

a) The Contractor for this work shall be held to have read all of the Bidding Requirements, the General Conditions, the Invitation to Bidders, and the Contract Proposal Forms before submitting a tender for the proposed work. He will be bound by all of the conditions and requirements therein.

1.02 DRAWINGS AND SPECIFICATIONS

a) The Contractor shall be furnished, upon award of a contract by the owner, with the following number of sets of the Contract Drawings, Specifications and Addenda:

Five complete sets of drawings and specifications

b) All Drawings and Specifications and all copies thereof are the property of the Owner and shall not be used or copied in any other work and shall be returned before final acceptance is issued if so requested.

c) The Contractor shall keep one complete set of the latest Contract Drawings and additional drawings together with the Specifications with all Addenda on the job site and available until the building or work is accepted.

d) No article, paragraph, or sentence of the Specifications is omitted unless expressly so stated in the Amendments or Addenda.

e) In case of discrepancy between the Drawings and Specifications, interpretation shall be given preference in the following order, with later dates taking precedence over earlier dates:

(a) Addenda

(b) Amendments to the Drawings

(c) Amendments to the Specification

(d) Drawings:

1. Schedules, piping and wiring diagrams take precedence over other data shown on the Drawings.

2. Notes take precedence over other data shown on the Drawings, except schedules, piping and wiring diagrams.

(e) Specifications

1.03 EXISTING CONDITIONS

a) It shall be the responsibility of each and every bidder to thoroughly investigate all existing conditions and he shall acquaint himself with existing conditions, insofar as it may affect his work and/or bidding.

b) The Bidder, before entering his proposal, shall satisfy himself fully as to the work called for on the Contract Documents, and to the working conditions and condition of the site, including the existence of other facilities and/or structures on, over or under the site which may interfere with, or make more difficult, the performance of the Contract.

c) The signature of the Bidder upon his proposal form shall constitute a certification to the Owner that such Bidder is fully informed regarding all the conditions affecting the work to be done, that such information was secured by personal investigation and that such Bidder accepts full responsibility for his bid.

d) If a Bidder should encounter any condition not provided for in the Contract Documents, that will affect his bid or the performance of his contract obligations, should he be the successful bidder, he shall notify the Architect, in writing, at least five (5) days prior to opening of bids.

1.04 PROJECT MEETINGS

a) All contractors shall be required to be responsibly represented at all project meetings.

b) Project meetings will be held when directed by the Architect and with at least twenty-four hours prior notice.

c) A minimum of two meetings per month shall be held. All project meetings shall be held at a location as directed on the project site.

1.05 FIELD REPRESENTATIVE

a) Contractor shall employ a competent general superintendent who will be approved by the Architect, and shall maintain him on the job at all times during construction until final completion. All field representatives shall be satisfactory to the Architect.

1.06 PROGRESS SCHEDULE

a) The Contractor for general construction will prepare a progress schedule. The progress schedule shall be in the form of a bar graph.

b) The subcontractors, mechanical and electrical contractors shall provide the General Construction Contractor all necessary progress information relative to their work which will be incorporated into the progress schedule.

c) The progress schedule shall be updated on a monthly basis to indicate the current status of the project.

1.07 MEASUREMENTS

a) Take all necessary measurements for all phases of the work as far in advance as possible for required installations. Contractor is solely responsible for accuracy of each measurement.

b) Make certain that all measurements required in connection with shop drawings are taken. Verify all building dimensions in field.

1.08 PROTECTION OF EXISTING WORK

- a) Provide and maintain all protections specified under various sections of this specification and as otherwise needed to adequately protect adjacent structures and work in place. When the work of any Contractor has been installed completely, the General Contractor shall assume the protection of work in his contract unless otherwise specified. This provision shall not relieve each subcontractor of his responsibility for his work or his subcontractor during the period of installation.
- b) Cover all finished surfaces with tarpaulins, plastic, plywood, or other approved material, depending on the nature of the work to be protected, and of the materials being applied whenever painting, plastering, welding, or similar operations are being carried on.
- c) Lay planks wherever materials are transported across finished work, or otherwise protect as required.
- d) The General Contractor shall be responsible for preventing overloading or over stressing any portion of the new or existing structure by a contractor, subcontractor or vendor.
- e) Use care in all operations so as to avoid damage to the work of other contractors.
- f) All tarpaulins used for this project must be fireproof, and of clean material.

1.09 CUTTING AND PATCHING

- a) All cutting and patching required in connection with the installation of the work shall be the full responsibility of the general contractor.
- b) Cutting and patching requirements due to defective and/or ill-timed work involved in the installation of work under the construction contract, shall be the responsibility of the general contractor and his subcontractors and shall be done without cost to the Owner.
- c) No trade or Contractor shall endanger any work of another by unnecessary and/or authorized cutting or altering and shall not cut or alter work of any other trade or contractor without consent of the Architect.
- d) All required patching work shall match the existing similar undisturbed work. All patching shall be done by workmen skilled in that particular trade

1.10 SHORING AND BRACING

- a) The Contractor shall be responsible for providing all bracing, shoring, needling, anchoring, and other supports for work included in his contract, that the nature of the work as it progresses may required in order to make all new construction and the existing adjacent work stable and secure, even where such items are not specially called for. These items shall be of adequate size for their purpose and shall consist of sound timbers or steel shapes with provision for adjustment.
- b) The Contractor will be held responsible for all damage due to his failure to provide adequate shoring and bracing of work in his contract.

1.11 OVERLOADING

- a) All contractors and subcontractors shall not overload any floor, roof or other portion of any structure on the project site.
- b) All loads to be imposed on the new structure shall not exceed 2/3 of the design load and all floor slabs shall be well cured before imposing load. Material shall be located so as to evenly distribute load. The Contractors shall be responsible to make periodic inspections to insure compliance.

1.12 DISSIMILAR MATERIALS

- a) Before installation of any dissimilar materials, the Contractor shall treat the material in accordance with commonly accepted procedures to prevent any oxidation, electrolysis, or other chemical reaction, where specifically specified or not.

1.13 COMPRESSED AIR

- a) Compressed air and equipment required for any trade shall be provided by the Contractor or Subcontractor for such trade. Its use shall be subject to the approval of the Architect.

1.14 UTILITY SHUTDOWNS AND CUTOVERS

- a) Except as otherwise expressly provided for in the Contract Documents, the Contractor shall be responsible for submitting to the Architect for his approval, a proposed schedule of all utility shutdowns and cutovers of all types which will be required to complete the project.
- b) The Contractor shall inform the Architect in writing seventy-two (72) hours prior to his intended starting time of his intention to perform the work and stating the nature and time required. Any such work which affects operations once started, shall be completed without stoppage. If premium time is required, it will be at no additional cost to the Owner.

1.15 PROJECT SIGN

- a) No signage will be permitted on the site.

1.16 RUBBISH REMOVAL AND CLEANING

- a) Periodic Cleaning - The Contractor shall at all times during the progress of the work, keep the site free from accumulation of waste matter or rubbish and shall confine his apparatus, materials and operation of his workmen to the limits prescribed by the contract limit lines except as the latter may be extended with the approval of the Architect and/or Owner. Removal of waste material, rubbish and waste matter must be performed at least once a week.
- b) Final Cleanup - Upon final completion of the work covered by this Contract, the Contractor shall clean the exterior of the building and the interior of all areas receiving final interior finishes under this contract and shall leave these areas ready for use and occupancy without the need for further cleaning of any kind and with all work in new condition and in perfect order. In addition, upon completion of all work, the Contractor shall remove all plants,

buildings, rubbish, unused materials, concrete forms and other materials belonging to him or used under his direction during construction, and shall restore such as are affected by the work to their original or designed condition, and in the event of his failure to do so, the same shall be removed by the Owner at the expense of the Contractor.

- c) No burning will be allowed on site.

1.17 SNOW REMOVAL

- a) Not required on this project

1.18 PROTECTION OF LIVES AND HEALTH

- a) The Contractor working on this project, shall comply fully with all applicable provisions of the laws of the State of New York, the United States of America, and with all applicable rules and regulations adopted or promulgated by agencies of the State of New York or the United States of America, dealing with the protection of lives and health. The Contractors attention is specifically called to the applicable rules and regulations, codes and bulletins of the New York State Department of Labor. Attention is also directed to the standards imposed under the Federal Occupational Safety and Health Act of 1970, as amended, P.L. 91-596: Construction Standards under this Act have been modified as 29 CFP Part 1926. (Other existing standards have been adopted by reference in these Construction Standards.)

1.19 AS-BUILT DRAWINGS

- a) An "as-built" set of drawings shall be maintained during construction by each Prime Contractor. Changes shall be recorded as they occur. This set to be used for the sole purpose of indicating changes and shall be kept clean, free of rips, tears and unnecessary marks. If the set is not in good condition at the completion of the project, the Contractor shall purchase another set at his own expense.
- b) At the completion of the project, the General Contractor shall turn over to the Architect, one (1) complete set of prints in good condition with all changes clearly indicated and supplement with information as approved by the Architect.

1.20 MAINTENANCE MANUALS

- a) Prior to the acceptance of the project, furnish to the Architect (3) bound copies of Maintenance Manuals, containing information as prescribed in the various sections and divisions of this Specification.
- b) Included shall be copies of manufacturer's instructions for operation and care for all items of equipment furnished under this contract.
- c) Provide neat, substantial, identified covers.

1.21 CONDITIONS FOUND DIFFERENT

- a) Should the Contractor encounter conditions at the site materially differing from those indicated in the Bidding and Contract Documents, he shall immediately give notice to the Architect of such conditions.

1.22 TRAILERS

- a) The Contractor and his subcontractors shall provide their own temporary trailers, as required.
- b) Location of trailers is subject to the approval of the Architect.
- c) Remove trailers when no longer needed.

1.23 STORAGE OF MATERIALS

- a) The Architect or site representative shall be consulted as to the means of access for delivery of materials and as to storage of same.
- b) In addition to the provisions of the General Conditions, and/or other sections of the Specifications, observe the following stipulations:
1. Store cement, lime and other materials subject to damage, off the ground and above floors in weathertight structures, or if within permanent buildings, in tight bins.
 2. Store all stone and masonry materials as specified in their respective Divisions and protect from elements.
 3. Store sand so that foreign matter will not become mixed with it.
 4. Do not unpack crated materials until ready for installation, except as required for inspection, in order to maintain protection.
 5. Do not store combustible materials on the premises for periods longer than necessary for execution of work.
 6. Do not pile materials during storage in such manner as to damage them. Protect from weather conditions that may cause damage.

1.24 STREET REPAIRS

- a) Each Contractor shall make all repairs to streets, parking areas, curbs, and sidewalks that may be damaged due to the execution of his contract.
- b) All work shall be repaired in accordance with rules and regulations of authorities having jurisdiction.

1.25 FIRE PROTECTION

- a) Provide 2-1/2 gallon, gas cartridge-type anti-freeze, underwriters-approved fire extinguishers or other types approved by the Architect, located on each floor and elsewhere as required in conformance with regulations of authority having jurisdiction
- b) Hang each fire extinguisher on a plywood board painted red secured to a column or wall 6'-0" above floor. Do not permit access to them to become obstructed.
- c) Every three (3) months, have each extinguisher inspected and tested and certified that charge is adequate and extinguisher is workable.
- d) Open fires, for any purpose, shall not be permitted.

1.26 SUBSTANTIAL AND FINAL COMPLETION PROCEDURES

- a) When project, or designated portion of project, has reached substantial completion, the Contractor shall send written notice to the Architect, claiming substantial completion.
- b) The Architect will then make a preliminary inspection to determine the state of completion, and prepare a list of items requiring completion or correction. If the Architect does not concur with such claim of substantial completion when list of items has been satisfied, he will so notify the Contractor.
- c) After major deficiencies are corrected, the Architect will make another inspection. If work is substantially complete, the Architect will issue a Certificate of Substantial Completion, for approval and acceptance of the Owner and the Contractor, accompanied by a list of items to be completed, prepared by the Contractor, and approved by the Architect.
- d) The Owner may occupy the project or designated portion of the project, as best serves their needs. The Contractor shall complete the list of items of work within the time stipulated for beneficial use.
- e) When all work has been completed fully and in accordance with the Contract Documents, the Contractor shall notify the Architect in writing claiming final completion and specifically noting each item on punch list as being complete or status of items if not complete. The Architect will make a final inspection and when the work is accepted, the Architect will issue a Certificate of Completion.
- f) The Contractor is to collect and deliver to the Architect, all certificates of inspection, testing, etc., as required by the Contract Documents.
- g) The Contractor shall have guarantees and bonds, required on specific materials and workmanship as defined in the technical sections, executed in the name of the Owner. Place all documents in single loose leaf cover and deliver to the Architect for transfer to the Owner, prior to final payment. As-built, or record drawings will be required prior to final payment.

END OF SECTION

SECTION 01300 - SHOP DRAWINGS AND SUBMITTALS1.01 SCOPE

The Contractor shall provide shop drawings, settings, schedule and such other drawings as may be necessary for the prosecution of the work in the shop and in the field as required by the Drawings, Specifications or Architect's instruction. Deviations from the Drawings and Specifications shall be called to the attention of the Architect at the time of the first submission of shop drawings and other drawings for approval. The Architect's approval of any drawings shall not release the Contractor from responsibility for such deviations. Shop drawings shall be submitted according to the following schedule:

- a) Three (3) (**review number required with architect at start of construction**) sets of prints shall be submitted at least thirty (30) days before the materials indicated thereon are to be needed, or earlier if required to prevent delay of the work.
- b) The Architect shall, within fourteen (14) days of the submittal of any shop drawings, return six (2) copies to the Contractor marked with all corrections and changes.
- c) The Contractor shall then correct (if required) the shop drawings to conform to the corrections and changes requested by the Architect.
- d) Following completion of such corrections and changes, the Contractor shall furnish the Architect one (1) copy of the shop drawings conforming to the required corrections and changes.
- e) The Contractor shall be responsible for the accuracy, completeness and suitability of the information furnished on shop drawings prepared by the subcontractors and vendors. The Contractor shall check and approve all shop drawings before they are submitted to the Architect. Such approval shall be understood to indicate the Contractor's assurance that the items proposed by the drawings and data sheet are in accordance with the Contract.
- f) Shop drawings may be disapproved by the Architect for the following reasons:
 - 1. Drawing has not been approved by the Contractor.
 - 2. Drawings have been prepared without due regard for information and requirements called for or logically implied by the Contract Documents.
 - 3. The information is not sufficiently complete or accurate to verify that the work represented is in accordance with the Contract Documents.
- g) Shop drawings and submitted data shall be graded by Architect as follows:
 - 1. Reviewed:
 - a. There shall be no correction marks on drawings.

- b. The work may be fabricated.
- 2. Reviewed As Noted:
 - a. Corrections shall be of a minor nature.
 - b. The work may be fabricated at the Contractor's option except where otherwise noted.
 - c. Corrected copies shall be submitted within a reasonable time for final approval.
- 3. Recheck and Resubmit:
 - a. Drawings are basically correct, but due to the nature and/or extent of corrections and/or revisions required, work may not be fabricated.
 - b. Drawing shall be corrected, revised and/or redrawn and resubmitted.
- h) The Architect's approval of shop drawings is subject to the following conditions:
 - 1. Approval does not authorize changes to contract requirements unless stated in a separate letter or change order.
 - 2. The Contractor shall verify all dimensions.
 - 3. Checking and approval of shop drawings shall be only for conformance with the design concept of the project and compliance with the information given in the Contract Documents. Contractor shall be responsible for dimensions to be confirmed and correlated at the job site, for all quantities, for all information that pertains solely to their fabrication processes or to techniques of construction and for coordination of the work of all trades.
- i) Shop drawings shall generally provide the following information:
 - 1. Job title and shop drawing number.
 - 2. Date of drawing and revisions.
 - 3. Certification that drawing has been checked by Contractor and is in compliance with Contract Documents.
 - 4. Details of fabrication, assembly and erection.
 - 5. Materials used.
 - 6. Required dimensions.
 - 7. Details of connections to related work.
 - 8. Designations of the other subcontract, trade or contractor who provides related work shown on drawings. If not shown, the information should be provided by the Contractor before the first submittal is transmitted to the Architect.
 - 9. Information relating to capacities, controls and other specification data for items of equipment.
 - 10. Schedule where pertinent information on finished or protective coating including color sample, where required.
- j) Distribution Procedure:

1. In general, all shop drawings and submittals shall be received by the Architect under a covering transmittal memorandum from the Contractor.
2. Shop Drawings are to be submitted to the Architect, three (3) copies for approval.
3. The Contractor shall then correct the shop drawing to conform to the corrections and changes requested by the Architect.
4. When shop drawings are "approved" and so stamped, the Contractor shall then make copy prints and distribute these prints.
5. The Contractor shall distribute approved copies as follows:
 - a. One or more copies to the fabricator and/or manufacturer's representative.
 - b. One copy in the Contractor's office.
 - c. One copy to file and keep in good condition at the project site.
 - d. One copy for the Owner's site representative.
6. The Plumbing, Heating and Electrical Contractors shall submit seven (3) copies for approval. Brochure or cuts for mechanical or other, two (2) copies shall be submitted.

1.02 SHOP DRAWING FILE TO OWNER

- a) At completion of construction, Contractor shall furnish Owner with one (1) unused copy of all shop drawings, manufacturer's diagrams, literature, etc., that were used in execution of his work.

1.03 SAMPLES

- a) The Contractor shall be responsible for the prompt submission for approval of all samples required by the specifications. Unless otherwise specified, all samples shall be submitted in duplicate.

END OF SECTION

SECTION 01770 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final completion procedures.
 - 3. Warranties.
 - 4. Final cleaning.
 - 5. Repair of the Work.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of cleaning agent.
- B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- C. Certified List of Incomplete Items: Final submittal at final completion.

1.3 CLOSEOUT SUBMITTALS

- A. Certificates of Release: From authorities having jurisdiction.
- B. Certificate of Insurance: For continuing coverage.
- C. Field Report: For pest control inspection.

1.4 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.

2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
 3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect Label with manufacturer's name and model number.
 5. Submit testing, adjusting, and balancing records.
 6. Submit sustainable design submittals not previously submitted.
 7. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
1. Advise Owner of pending insurance changeover requirements.
 2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 3. Complete startup and testing of systems and equipment.
 4. Perform preventive maintenance on equipment used prior to Substantial Completion.
 5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 017900 "Demonstration and Training."
 6. Advise Owner of changeover in utility services.
 7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
 8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 9. Complete final cleaning requirements.
 10. Touch up paint and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1.5 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:
1. Submit a final Application for Payment.
 2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed

and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.

3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report.

- B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1.6 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
1. Organize list of spaces in sequential order.
 2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
 3. Submit list of incomplete items in the following formats:
 - a. PDF electronic file. Architect will return annotated file.
 - b. Three paper copies. Architect will return two copies.

1.7 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where warranties are indicated to commence on dates other than date of Substantial Completion, or when delay in submittal of warranties might limit Owner's rights under warranty.
- B. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
- C. Warranty Electronic File: Provide warranties and bonds in PDF format. Assemble complete warranty and bond submittal package into a single electronic PDF file with bookmarks enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
- D. Warranties in Paper Form:
1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
- E. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS**2.1 MATERIALS**

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION**3.1 FINAL CLEANING**

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - c. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - d. Sweep concrete floors broom clean in unoccupied spaces.
 - e. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
 - f. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 - g. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - h. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
 - i. Leave Project clean and ready for occupancy.
- C. Construction Waste Disposal: Comply with waste disposal requirements in Section 017419 "Construction Waste Management and Disposal."

3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations, before requesting inspection for determination of Substantial Completion.
- B. Repair, or remove and replace, defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

END OF SECTION 01770

SECTION 02050 - DEMOLITION AND REMOVALS

PART 1 - GENERAL

1.01 SCOPE

a) The work covered by this section includes all equipment, material and labor necessary for, and incidental to, the completion of Demolition Work and Removals as indicated on Drawings and herein specified.

b) Demolition and Removals includes, but is not necessarily limited to, the following:

- All other removals as required to complete the new plan

1.02 DEMOLITION AND REMOVALS

a) Materials forming permanent part of building requiring demolition or removals becomes Contractor's property and except as noted, remove them. Where work "remove" occurs herein, it shall mean removal from site.

1.03 PROTECTION OF STRUCTURES, PROPERTY

a) Execute demolition work to insure adjacent property against damages which might occur from falling debris or other cause. Do not interfere with safe passage to and from same.

b) Take precautions to guard against movement or settlement. Provide bracing or shoring necessary or proper in connection therewith. Be responsible for safety, support of such building. Be liable for any such movements or settlement, any damage or injury caused thereby or resulting there from.

c) Repair damage done to Owner's property or any other person or persons on or off premises by reason of required work.

1.04 DISPOSAL

a) Remove debris as it accumulates resulting from demolition operations. Do not store or permit debris to accumulate on site. If Contractor fails to remove excess debris promptly, Architect reserves right to cause same to be removed at Contractor's expense.

b) Wood debris resulting from demolition operations may not be burned on site.

c) All debris shall be disposed of off-site in a legal manner.

1.05 PROTECTION OF EXISTING FINISHES

a) Contractor to protect existing wall and ceiling finishes not being removed. Before starting any construction, the Contractor shall note (in writing to the Architect), any damaged floor, wall or ceiling. These will be recorded and be repaired as required. Any existing finishes to remain that are damaged during the construction by the Contractor or his subcontractor, will be repaired by the Contractor to the satisfaction of the Architect at no additional cost to the Owner.

PART 2 - (NOT USED)

PART 3 - EXECUTION

3.01 DEMOLITION PROCEDURE

- a) Material shall not be placed so that the building structure is overloaded.
- b) All work which is to remain shall be adequately braced and shored as required to prevent damage or injury.
- c) **Items removed that are not being reused will be turned over to the owner unless they decide they do not want them. It will then be the contractor's responsibility to remove said items from the site and disposed in an approved manner.**

END OF SECTION

SECTION 15000 – PLUMBING GENERAL PROVISIONS

PART 1 - GENERAL

The Contractor shall be held to have read all the bidding requirements, all the General Conditions of the Contract, the Supplementary General Conditions and Division 1 for the proposed work and in the execution of the work, he will be bound to all of the conditions and requirements.

1.01 SCOPE

- a) The work covered by this division includes all equipment, material and labor necessary for, and incidental to, the completion of the Plumbing Work as indicated on the drawings, and herein specified.
- b) The work includes, but is not necessarily limited to, the following:
 - (as required for scope of this project)
 - Testing and Balancing
 - Insulation
 - Sprinkler System w/ water storage tanks

1.02 SHOP DRAWINGS

- a) Submit shop drawings in accordance with Division 1.

1.03 ORDINANCE AND PERMITS

- a) All work, materials, and manner of installing same, shall be in full accordance with the legal requirements and rules of the local plumbing code, and the State Plumbing code.
- b) This Contractor shall furnish and file with the proper authorities, all drawings required by them in connection with this work. He shall obtain all official permits, licenses, and inspections and pay all legal and proper fees connected with same.

1.04 COMPLIANCE

- a) All work shall be in compliance with local, state and federal laws and regulations, and all applicable codes, especially the NYS Plumbing Code, NFPA, OSHA 1965 Boiler Room

Restrictions, Labor Department, and the manufacturer of the product.

1.05 GUARANTEE

- a) When work is completed, tested and ready for use, submit a written guarantee covering repairs or replacement of all defects in workmanship and materials under this Division, and all damages resulting from such defects, for a period of not less than one (1) year after completion and occupancy by the Owner.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 INSTALLATION

- a) This Contractor shall cooperate with all other contractors, preparing, arranging and erecting his work in its various stages at such times and as required to avoid unnecessary delay or interference with the completion of the work.
- b) Complete installation shall be neat and workmanlike in conformance with best modern trade practice, by competent experienced mechanics, to full satisfaction and approval of the Architect. All work shall be in compliance with local, state and federal laws and regulations and all applicable codes. This Contractor shall obtain and pay for all permits and certificates of inspections required for his part of the work.
- c) Contractor shall be responsible for proper installation of all work in available spaces, as specified or indicated on drawings. Check and verify conditions, measurements, dimensions, levels, and elevations at the building.
- d) Provide caps, plugs or closures on piping, apparatus and equipment required to exclude all dirt and foreign matter before and during installation.
- e) Protect all fixtures and equipment against damage or use during construction and until final acceptance of work.
- f) Remove dirt, paint, grease and stains from fixtures and apparatus installed under this contract, including loose labels and tags which are not required for proper operation or identification of equipment. Fixtures, devices and apparatus shall be thoroughly cleaned and polished to present a finished and workmanlike job, ready and suitable for use by the Owner.
- g) Installation of apparatus and equipment shall be in accordance with instructions and recommendations of manufacturer of equipment.
- h) Contractor shall be responsible and pay for any and all damages caused by his employees, equipment, leaks, operations, etc., to the building and to work of other contractors, and shall also be responsible and pay for any damage resulting from his failure to properly protect his work, or failure to provide caps or plugs for openings in piping or equipment.

- i) Do not cut or notch structural members or framing without approval by the Architect.

3.02 CUTTING AND PATCHING

- a) Cutting and patching shall be avoided by providing sleeves and necessary openings as construction progresses.
- b) If required, cutting and patching shall be neatly and carefully done to avoid damage to adjacent work and finishes, and new materials and methods shall be as approved to match adjacent work. Patching shall be done by mechanics skilled in this work, and shall fulfill requirements of applicable sections of these specifications.

END OF SECTION

SECTION 15100 - PLUMBING MATERIALSPART 1 - GENERAL1.01 SCOPE

a) Furnish and install all piping and related fittings and hangers. The work includes, but is not necessarily limited to, the following:

- . Waste Piping
- . Hot and Cold Water Lines
- . Vents

b) All pipe and fittings to domestic, made in U.S.A.

PART 2 - PRODUCTS2.01 POLYVINYL CHLORIDE

- a) Pipe: PVC - Schedule 40
- b) Fittings: DWV
- c) Joints: Solvent cement and solvent welded as required by pipe manufacturer.
- d) Application: All sanitary drainage and vent piping within building.

2.02 STANDARD-WEIGHT BLACK STEEL PIPE

- a) Pipe: Domestic, standard weight black steel pipe, A53 Schedule 40, welded or seamless with maker's name rolled into each length.
- b) Fittings: Natural Gas - 2" and down - 150# black malleable.
2-1/2" and up - Standard weight, Schedule 40.
- c) Joints: 2" and down - threaded with teflon tape or approved piping compound.
2-1/2" - Butt-welded.
- d) Application: All gas piping, above grade. Test gas piping system in accordance with the gas company standards. All gas piping shall be tested at a minimum of 1-1/2 times operating pressure for at least one hour without loss of pressure.

run all new gas piping with-in house where copper is now being used. Verify location and amount.

2.03 COPPER

- a) Pipe: Copper tubing, seamless drawn extruded tubing, Type "L" hard temper, in accordance with ASTM.
- b) Fittings: Wrought or cast bronze.
- c) Joints: 95-5 (tin and antimony) solder or approved lead-free solder.
- d) Application: Interior hot, cold and recirculating lines above grade.

2.04 CPVC DOMESTIC WATER PIPING

- a) All pipe and fittings shall be manufactured from CPVC compound with a cell class of 24448 for pipe and 23447 for fittings as per ASTM D-1784; shall conform to National Sanitation Foundation (NSF) Standards 6 and 14; and shall be intended for use in hot and cold domestic water distribution systems.
- b) 1/2 in. through 2 in. Sizes: CPVC Copper Tube Size, standard dimension ratio (SDR) 11 conforming to ASTM D-2846. Transition fittings shall have brass male or female connections with integral CPVC socket connections; Charlotte Pipe and Foundry Co. FlowGuard Gold or approved equal.
- c) 3 in. through 6 in. Sizes: CPVC Schedule 80 iron pipe size (IPS) conforming to ASTM F-441. Socket type fittings shall conform to ASTM F-439. Transition to metal piping shall be made using 150# flanged connections.
- d) All pipe and fittings shall be produced by a single manufacturer and installed in accordance with manufacturer's recommendations and local Code requirements. Piping shall be installed using approved solvent cement conforming to ASTM F-493 and primer conforming to ASTM F-656 and in accordance with manufacturer's recommendations.

PART 3 - EXECUTION

3.01 INSTALLATION

- a) Install as per layout on drawings and to accommodate fixtures.

3.02 HANGERS AND SUPPORTS

PIPE SUPPORTS

a) Pipe lines shall be supported by clevis or split ring type (steel for steel pipe, copper for copper tubing). Hot and cold water and above ground storm water piping shall have oversized hangers to fit over insulation.

b) Horizontal runs shall be supported from the building construction at intervals shown in the schedule below:

<u>PIPE SIZE</u>	<u>STEEL OR WROUGHT IRON</u>	<u>COPPER</u>	<u>PVC</u>
1/2"-1-1/2"	8'	6'	3'
2" & larger	10'	10'	4'

c) Furnish anchors as required or as directed.

d) All vertical piping shall be supported at floor and along wall as required for rigidity.

3.03 SLEEVES AND ESCUTCHEONS

a) Sleeves through interior partitions shall be No. 22 ga. galvanized sheet iron, set flush with finished wall surfaces.

b) Sleeves through masonry floor or masonry interior walls shall be seamless Schedule 40 steel pipe, galvanized.

c) Pipe escutcheon for walls and ceilings shall be a chromium plated cast brass split hinged type with fastening screw, designed to clear a pipe sleeve projecting 1/4" from finished floor to ceiling. Escutcheon shall be Ritter Patter and Casting Co. 3A.

3.04 PIPING INSTALLATION

a) Drain Lines:

All drain lines shall be evenly pitched and where piping changes direction, they shall be made using long radius fitting. Provide cleanouts at ends of all branch lines.

b) Cold Water, Hot Water Recirculating Lines:

All water lines shall be run free of water traps. Provide shock absorber at all branch lines to fixtures. Hot water and recirculating lines shall be provided with swing joints for expansion and contraction.

c) The Contractor shall make all final piping connections, including equipment supplied by others.

3.05 VALVES

- a) Gate Valve - Jenkins 1240 or equal Hammond, Nibco or Crane; 300 lb., non-rising stem, union bonnet, bronze body.
- b) Check Valve - Jenkins 4092, 150 lb, horizontal swing check, bronze body.
- c) Ball Valve - Watts B6000/B6001 or Apollo 70-100/70-200.
- d) Plug Valve (for gas service) - Size 2-1/2" and up, "Resun" 150# flanged, lubricated type with wrench. Size 2" and down - "McDonald"; threaded connections, non-lubricated, square head.

3.06 COVERING AND INSULATION

Insulate cold water and hot water piping in crawl or attic space.

- a) Make: Owens-Corning, Certainteed, St. Gobain, Keene, Armstrong, Cork.
- b) Type: Fiberglass 25 ASJ (all service jacket) glass fiber or FR Armflex flexible foamed plastic to be used on all concealed and exposed piping. Glass fiber shall be heavy density rigid glass fiber molded snap on sections with a white vinyl jacket and vapor barrier.
- c) Application: All seams, laps and end joints on glass fiber will be sealed by self sealing lap on jacket or joint sealing strips installed in accordance with manufacturer's recommendations. All longitudinal and butt joints on flexible, foamed plastic shall be sealed with adhesive in accordance with the manufacturer's recommendations. Where staples are used, they shall be flood sealed with Benjamin-Foster 30-36 mastic.
- d) Fittings: Valves, flanges and all other piping components insulated with glass fiber, shall be included. Insul-sur molded fiberglass fittings or fabricated mitered segments of pipe insulation securely wired in place, same thickness of adjoining pipe. Mitered segments shall be covered with 1/4 inch coat, hard setting, finishing cement. All fittings will be covered with glass fiber lagging cloth, embedded into Benjamin Foster 30-35 mastic and given flooding brush coat of mastic or Zeston's one-piece, premolded, insulated fittings with joints sealed with Z-tape, per manufacturer's recommendations. Fitting components on piping insulated with flexible foamed plastic, shall be insulated continuously around 45 degree and 90 degree elbows on pipe sizes 1-1/8 inch and under. On elbows above 1-1/8 inch and on other fittings, insulation shall be mitered, the joints sealed with Armstrong 520 adhesive, and installed in accordance with the manufacturer's recommendations.
- e) Schedule:

1. Water mains and Branch Runouts: 1-inch thick glass fiber or flexible foamed plastic.
 2. Local Domestic Branch Runouts: 2-inch and smaller -1/2 inch thick glass fiber or flexible foamed plastic.
- f) Insulation shall be protected with HD fiberglass sections and galvanized sheetmetal protection shields at hangers. Provide molded insulation on valves and fitting of same material as adjacent insulation.
- g) Fire Resistance: The complete installation shall have a maximum flame spread rating of 25 and maximum smoke developed rating of 150.

3.07 RECORD DRAWINGS

At the completion of the installation work, the Contractor shall prepare, As-Built prints of all plumbing work.

3.08 OPERATION AND MAINTENANCE MANUALS

Upon completion of the work, and before request for final payment, the Contractor shall deliver to the Architect, one (1) set of full and complete directions pertaining to the operation and maintenance of all equipment and systems installed under this Contract. These directions shall be on 8-1/2" x 11" sheets with index tabs and shall be accompanied by the blue prints of the work as installed, shop drawings, parts lists, diagrams, etc., altering or repairing of the installation. The instructions shall be inserted in hard cover, 3-ring binder(s).

END OF SECTION

SECTION 16100 - GENERAL PROVISIONS

PART 1 - GENERAL

The Contractor shall be held to have read all the bidding requirements, and reviewed the execution of the work, he will be bound by all of the conditions and requirements.

1.01 SCOPE

- a) The work covered by this division includes all equipment, material and labor necessary for, and incidental to, the completion of the Electrical Work as indicated on the Drawings and herein specified.
- b) The Work includes, but is not necessarily limited to, the following:
 - Emergency lighting and related wiring
 - Fire/Smoke detection system
 - Electrical connections to all equipment (contractor must review all drawings to ascertain the required connections)

1.02 CODES AND STANDARDS

- a) Compliance with all applicable provisions of the following codes and standards is mandatory:
 - 1. All applicable standards of the American National Institute.
 - 2. Latest Edition National Electric Code
 - 3. National Fire Protection Association Codes and Regulations
 - 4. Underwriters Laboratory
 - 5. Occupational Safety and Health Act
 - 6. Applicable State and Local Codes

1.03 INSPECTIONS AND TESTING

- a) Before an application for final acceptance of the work will be considered, all tests deemed necessary to show proper execution of the work shall have been performed and completed in the presence of the Architect and/or other parties who may have legal jurisdiction.

- b) Installation shall be tested for grounds and short circuits. If tests indicate inadequate insulation resistance, corrections shall be made as directed by the Engineer and/or other parties having jurisdiction.
- c) Any defects or deficiencies discovered in any of the electrical work shall be corrected.
- d) Apply for and obtain all required permits and inspections, pay all fees and charges for same.
- e) Provide certificates of approval from New York Board of Fire Underwriters prior to request for final payment.

1.04 INSTALLATION

- a) Components include equipment, conduit, panelboards, outlets, lighting fixtures, telephone conduit.
- b) The run and arrangement of all components is subject to such changes and modifications of the runs and locations as may be necessary to suit conditions at the building and to avoid interferences or conflicts with other work or for maintenance convenience.
- c) Refer to and carefully check all building, structural, electrical, and mechanical drawings and details and note the locations where walls, partitions, ceilings, beams, columns and other surfaces are furred, and the location of shafts and other work that might conflict with the system. Arrange the work accordingly and furnish necessary parts as may be required to meet such conditions.
- d) Utilize wall chases, pipe shafts and hung ceilings. Obtain approved ceiling heights and wall thicknesses and clear same with the work of this Contract. Do not install any item so as to change an architectural dimension. Install components as high as possible and offset to clear other work.
- e) Install all components promptly after the excavating or cutting for same has been done so that the openings may be closed up as quickly as possible upon completion of necessary tests witnessed by the Architect.
- f) Run or mount components straight and direct in general forming right angles with or parallel to walls or other components and neatly spaced. Install components so that there is clearance of at least an inch. Hang components from construction above and as close as possible to the bottom of slabs, ceilings and beams.
- g) Provide access doors for operation, maintenance access and repair. Provide access doors for all concealed junction boxes, pullboxes, etc., and where required to allow access to concealed parts of the system for maintenance. Allow space for use of tools and removal of parts. Provide connections to permit

removal of components for maintenance. Where access doors are required in fire-rated ceilings, walls, or other structures, provide UL approved and rated access doors.

h) Cap and plug all openings during and after installation to prevent entry of dirt, sand and foreign matter. Use approved metallic or non-metallic closures constructed or manufactured for the specific purpose.

END OF SECTION

SECTION 16300 - BOXES AND FITTINGS

PART 1 - GENERAL

1.01 SCOPE

- a) Provide all boxes and fittings required to install all the electrical and signal systems specified and shown. All boxes shall be concealed in building construction.
- b) Provide boxes of a size and type as required by the NEC; include all necessary hangers, supports and mountings.
- c) All boxes must be securely mounted to the building structure with supporting arrangement independent of the conduits entering or leaving the boxes.

PART 2 - PRODUCTS

2.01 MATERIALS

- a) Non-metallic outlet boxes, single, gang or round, angled mid-nailed with cable connectors.
- b) Provide cast rust proof boxes with gasketed covers at exterior and damp areas.
- c) Galvanized steel device, outlet, junction and pullboxes, cabinets, junction boxes, screw covers and hinged covered as applicable for each particular use.

PART 3 - EXECUTION

3.01 INSTALLATION

- a) All outlet boxes shall be standard type, at least 1-1/2" deep, single or gang style; size to accommodate devices as noted. Boxes must be equipped with a plaster ring or cover as necessary.
- b) Standard deep type outlet boxes, concrete rings with appropriate covers must be used on floor slab construction so concealed conduits entering sides of boxes can clear steel reinforcing rods.
- c) Outlet boxes used for exterior outlets or exposed interior conduit runs in damp or moist location must be cast rust-resistant metal. Gasketed covers shall be provided at all locations.
- d) All boxes - pull, junction, outlet, etc., shall be installed flush with all finish surfaces.

END OF SECTION

SECTION 16400 - CONDUCTORS AND RACEWAYS

PART 1 - GENERAL

1.01 SCOPE

- a) Conductors shall be provided for all systems, electric work, etc. and shall be noted on drawings, as required or recommended by manufacturer of all systems.

PART 2 - PRODUCTS

2.01 MATERIALS

- a) All wiring to be non-metallic sheathed cable (NM).
- b) Conductors shall be copper and conform to latest requirements of the NEC and be UL approved for the locations used. Conductors must be manufactured in accordance with latest ASTM standards for soft or annealed copper work. Conductors to be copper 98% conductivity.
- c) All conductors shall be 600 volt, type THWN, THW, THHN, except as otherwise noted.
- d) As noted or specified in other sections, use metallic tube (EMT), shall be galvanized steel with fittings of same and installed per NEC requirements.

PART 3 – EXECUTION

3.01 INSTALLATION

- a) No wire small than #12 THW may be used for any branch circuit. If the single distance from the panel to the first outlet of any branch circuit exceeds 100 feet, then the wire must be #10 to the first outlet of each branch circuit.
- b) All conductors shall be:
 - 1. Installed in accordance with manufacturer's recommendations.
 - 2. Applicable and rated; and suitable for the application intended.
 - 3. Installed without nicks, abrasions, cuts and other damage to the insulation and/or coverings. All damaged conductors shall be removed and new installed.

END OF SECTION

SECTION 16470 - PANELBOARDS, SAFETY SWITCHES, DISCONNECT SWITCHESPART 1 - GENERAL1.01 SCOPE

- a) Provide all safety switches, disconnect switches and panelboards specified, shown, indicated and/or required by drawings and specifications and/or NEC.
- b) Contractor to review all existing equipment and inform architect/owner if it needs to be replaced.**
- b) Electrical Contractor shall provide: Disconnect switch for all equipment line and load connections to switch or circuit breaker and final terminal connections to all equipment. Verify type and size of switch required. This shall include all equipment provided by all other trades or contractors.

PART 2 - PRODUCTS2.01 MATERIALS AND MANUFACTURERS

- a) Safety switches and motor disconnecting switches shall be NEMA type N.D. or Type A, Underwriters Laboratories approved. Switches must be provided in NEMA Type 1 enclosure for interior use and Type 3R for exterior use.
- b) Safety switches shall be Square D Co. H200 or H300 line, or similar, as manufactured by General Electric, ITE or Westinghouse Electric.
- c) Panelboards:

All panelboards to be of the same manufacturer and to be made up of quick-make, quick-break thermal magnetic circuit breakers with operating handles having an on-off trip position. Cabinets to have boxes with adequate wiring space on each side, surface mounted, galvanized code gauge steel complete with trim, door, lock, keys and typewritten directory. With each panel, deliver and attach as directed, handle lock-off devices for 20% of the circuits. Common key to all panels.
- d) All two pole breakers to be common trip. Busses to be drilled full length so as to receive maximum number of breakers. Arrangement and installation of individual breakers shall be such that replacement can be made without disturbing adjacent units. Panel buss material to be copper.
- e) Acceptable makers to be Square D, G.E. or Westinghouse.

PART 3 - EXECUTION**3.01 GROUND FAULT PROTECTION**

- a) Receptacle protection - Pass & Seymour Ground Fault Interrupter #1591-F.

3.02 INSTALLATION

- a) Install all equipment in accordance with manufacturer's recommendations and NEC.

3.03 Circuit breakers shall have minimum interrupting ampacity as follows:

<u>Frame Size</u>	<u>No. of Poles</u>	<u>Voltage AC</u>	<u>Interrupting Rating RMS Amperes</u>
	70	1	120/240
	100	2, 3	120/240
100	1	277	15,000 Asy
	225	2, 3	22,000 Sym
	225	2, 3	18,000 Sym
	225	2, 3	14,000 Sym
	400	2, 3	42,000 Sym
	400	2, 3	30,000 Sym
400	2, 3	600	22,000 Sym
800	2, 3	240	42,000 Sym
800	2, 3	480	30,000 Sym
800	2, 3	600	22,000 Sym
	2,000	2, 3	150,000 Asy
	2,000	2, 3	100,000 Asy
2,000	2, 3	600	75,000 Asy

END OF SECTION

SECTION 16500 - WIRING DEVICESPART 1 - GENERAL1.01 SCOPE

- a) Provide switches, receptacles, special outlets and configurations required, panelboards, etc. as shown or specified. Include all outlet boxes set flush in wall, connections, keys, etc. for special outlets, plates as specified.

PART 2 - PRODUCTS2.01 MATERIALS (where used)

- a) Wall Switches - flush toggle, 120/277 volt, AC only, specification grade, quiet type, 20 amp, color coded, UL rated, Nema WB-1 1974; Federal Spec. WS-896 as amended, General Electric #GE5951-1; single pole, three-way General Electric #GE5953-1; four-way General Electric #GE5954-1.
- b) Duplex Receptacles - 20 amp, 2-pole, three wire, Nema 5-20R, U-shaped grounding slot, General Electric #GE4065-1, UL listed, Nema WD-1-1974; Fed. Spec Standard and installed in accordance with 1981 NEC. **All outlets in bedrooms are to be Arc fault (AFCI)**
- c) Weatherproof duplex receptacle - Weatherproof with locking cover, cylinder type lock, all keyed alike General Electric #GE9227-5. (Ground fault type).
- d) Plates - All switches, receptacles, outlets, blank outlets, etc. shall be ivory, smooth GE, Hubbell or equal.
- e) Manufacturers - Switches, receptacles, etc., as manufactured by Hubbell, Pass & Seymour and Bryant will be acceptable equals.
- f) Ground Fault Receptacle (denote on plan GFI), to be Pass & Seymour ground fault interrupter #2091-F or Leviton #6394-I, or approved equal.

PART 3 - EXECUTION3.01 INSTALLATION

- a) Mounting Height above finished floor shall be as follows
(unless otherwise indicated):

Duplex Receptacle..... 24"

Duplex Receptacle GFI.....	48"
Thermostat.....	54" to top
Wall switch	48" to top
Telephone outlets.....	24"
Cable outlets.....	24"
Wall telephone.....	54" to top
Range outlet.....	Obtain from stove manufacture
Panel High in apartment.....	54" to top
Emergency call pulls	48" to top
Exit light.....	at ceiling above door
Emergency light.....	6" below ceiling
Pull station.....	48"
Wall light.....	6'-2"

Provide all switches, receptacles, telephone outlets as indicated.
All switches shall be set plumb and level, flush with finish wall surface.

Provide all switches, receptacles, etc., as shown or specified.
Verify all final locations in the field with architectural drawings and Architect. All switches must be set on latch side of door. Ganged switches shall be set horizontally and connected to operate in a respective sequence with the light.

END OF SECTION

SECTION 16720 - FIRE/SMOKE DETECTION SYSTEM

PART 1 - GENERAL

1.01 DESCRIPTION

a) Work Included: Extend existing Fire and Smoke Detection system consisting of manual and automatic fire alarm initiating devices, early warning smoke detection, remote sounding devices and automatic controls. Provide fire alarm testing report for full system upon completion of work.

1.02 QUALITY ASSURANCE

- a) Codes and Standards:
1. National Electric Code (NEC)
 2. National Fire Protection Agency (NFPA)
 3. Underwriters Laboratory (UL)

1.03 SUBMITTALS

- a) Shop Drawings: Layout indicating size, type and location of equipment, complete with wiring diagrams, method of installation.
- b) Product Data: Manufacturer's printed data, catalog cuts and recommended installation.
- c) Submit full scale schematic drawings of systems, showing complete details and operation, for approval by the Architect, before fabrication.
- d) Samples of various items, when requested.
- e) Test Reports: Reports of field testing.
- f) Operations and Maintenance Data:
1. Provide three (3) complete manuals on the systems, components and wiring diagrams. The manuals shall include operation and maintenance instructions and manufacturer's spare parts list for all systems' components.
 2. Provide services of the manufacturer's trained representative, to instruct designated personnel in the operation and maintenance of each system.

1.04 GUARANTEE

- a) Manufacturers shall guarantee each system for a period of one (1) year, subsequent to final acceptance of systems.
- b) The Contractor shall guarantee all wiring to be free of inherent mechanical or electrical defects for one (1) year from date of acceptance.

1.05 DELIVERY AND STORAGE

- a) Deliver equipment protected and undamaged.
- b) Store equipment in locations and in a manner to protect same from damage of any kind.

1.06 OWNER'S ACCEPTANCE

- a) The Owner's acceptance of equipment is contingent upon the equipment satisfactorily meeting these specifications and intended performance.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

- a) The fire alarm system shall be electrically supervised non-coded zone indicated type. Systems to be zoned by floor.
- b) The fire alarm system shall contain battery back-up power with an automatic transfer switch to maintain power in case of power outage. The battery unit shall be provided with a battery charger with a trickle charge feature.
- c) The minimum wire size shall be as required for the fire alarm system and as per code requirements.

2.02 APPROVED MANUFACTURERS

Fire Alarm System

- Extend existing system, verify in field

2.03 MATERIALS - FIRE ALARM SYSTEM

Where used, all devices should meet the following requirements:

- a) Smoke Detectors - Shall be photo electric with verification circuit.
- b) Manual Pull Stations - Single-action type. (if used)

- c) Heat Detectors - 136 degrees F.
190 degrees F. (in attic)
- d) Audio Signal/Visual, horn strobe light, Flashing type with "FIRE" silk-screened.
- e) Lighting Surge Protector to be installed on the system.
- f) Remote Audible/Visual Signal - at each bedroom, similar to Gentex GX-90S.
- g) Connection and all panel controls for the sprinkler system alarm relay.
- h) Electromagnetic Door Holder/Release, Rixson or equal (if used)
- i) Carbon Monoxide Detectors CO detectors, as listed by system manufacture

PART 3 - EXECUTION

3.01 INSTALLATION

- a) The system shall be installed in a workmanlike manner in accordance with approved manufacturer's wiring diagrams. The Contractor shall furnish all conduit, wiring, outlet boxes, junction boxes, cabinets and similar devices necessary for complete installations. All wiring shall be of the type recommended by the manufacturer.
- b) End of Line Resistors: Shall be furnished as required for mounting as directed by the manufacturer of the fire alarm system.
- c) The systems shall be arranged to receive power from a 3-wire, 120 V. AC, current supply.
- d) Field Quality Control: The completed systems shall be fully tested under the supervision of trained manufacturer's representatives. The systems shall be demonstrated to perform all of the functions as specified.
- e) Supply and install all necessary signs, charts and instructions as required by NFPA Codes 72 and 74.
- f) Included with the work shall be framed floor plans showing locations of fire alarm system pull stations, signals, detection heads and control panel. Also, include an electric riser diagram showing the interconnection of all components. Identify all equipment installed.
- g) All equipment, signals, detectors, stations, control panels, battery charger and conductors for general wiring shall be UL approved.

h) Systems shall be tested before final acceptance. Provide written report from manufacturer that a qualified agent has tested each item and is fully operational.

END OF SECTION

SECTION 230010 - BASIC MECHANICAL REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and General Provisions of Contract, including General and Supplementary Conditions and Division 01 Specification sections, apply to work of this section.
- B. All electrical work provided by Division 23 shall comply with Division 26 specifications and specific requirements listed therein.

1.2 RULES AND REGULATIONS

- A. Work and materials shall conform to and be executed, inspected and tested in accordance with the latest edition of applicable Federal, State and local codes and with the other governing rules and regulations of Federal, State and local governmental agencies.
- B. Specific codes and standards which will apply to this installation are listed in applicable specification sections.

1.3 SUMMARY

- A. This Section specifies the basic requirements for mechanical installations and includes requirements common to more than one section of Division 23. It expands and supplements the requirements specified in sections of Division 01.
 - 1. Submittals.
 - 2. Coordination drawings.
 - 3. Record documents.
 - 4. Maintenance Manuals.
 - 5. Rough-ins.
 - 6. Mechanical installations.
 - 7. Cutting and patching.
- B. Related Sections: The following sections contain requirements that relate to this section:
 - 1. Division 23 Section "Division of Work, Divisions 23/26", for electrical work divided between Division 23 and Division 26 responsibility.
 - 2. Division 23 Section "Electrical Requirements for Mechanical Equipment", for factory-installed motors, controllers, accessories, and connections.
 - 3. Division 23 Section "Basic Mechanical Materials and Methods", for materials and methods common to the remainder of Division 23, plus general related specifications including:

1.4 RECORD DOCUMENTS

- A. Prepare record documents in accordance with the requirements in Division 01 Section "Contract Closeout". In addition to the requirements specified in Division 01, indicate the following installed conditions:
1. Ductwork mains and branches, size, and location, for both exterior and interior; locations of balancing, smoke, fire control dampers and other control devices; filters, boxes, terminal units and air terminals requiring periodic maintenance or repair.
 2. Mains and branches of piping systems, with valves and control devices located and numbered, concealed unions located, and with items requiring maintenance located (i.e., traps, strainers, expansion compensators, tanks, etc.) Valve location diagrams, complete with valve tag chart. Refer to Division 23 Section "Mechanical Identification." Indicate actual inverts and horizontal locations of underground piping.
 3. Equipment locations (exposed and concealed), dimensioned from prominent building lines.
 4. Approved substitutions, Contract Modifications, and actual equipment and materials installed.

1.5 MAINTENANCE MANUALS

- A. Prepare maintenance manuals in accordance with Division 01 Section "Contract Closeout". In addition to the requirements specified in Division 01, include the following information for equipment items:
1. Description of function, normal operating characteristics and limitations, performance curves, engineering data and tests, and complete nomenclature and commercial numbers of replacement parts.
 2. Manufacturer's printed operating procedures to include start-up, break-in, and routine and normal operating instructions; regulation, control, stopping, shutdown, and emergency instructions; and summer and winter operating instructions.
 3. Maintenance procedures for routine preventative maintenance and troubleshooting; disassembly, repair, and reassembly; aligning and adjusting instructions.
 4. Servicing instructions and lubrication charts and schedules.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to the project properly identified with names, model numbers, types, grades, compliance labels, and other information needed for identification.
- B. Handle equipment carefully to prevent damage, breaking, denting and scoring. Do not install damaged equipment or components; replace with new.
- C. Store equipment in clean dry place. Protect from weather, dirt, fumes, water, construction debris, and physical damage.
- D. Comply with Manufacturer's rigging and installation instructions for unloading of equipment and moving of equipment to final location.
- E. Any specific additional delivery, storage and handling requirements are listed in the applicable specification sections.

1.7 SUBMITTALS

A. Materials

1. Piping Materials
2. Supports and Anchors
3. Mechanical Insulation
4. Furnaces/Condensing Units
5. Ductwork Accessories
6. Air Outlets and Inlets
7. Air Terminals
8. Testing, Adjusting and Balancing

B. Submittals shall include the following:

1. Product Data: Submit product data, including rated capacities, weights (shipping, installed, and operating), furnished specialties and accessories; and installation and start-up instructions.
2. Shop Drawings: Submit manufacturer's assembly type shop drawings indicating dimensions, weight loadings, required clearances, methods of assembly of components, and location and size of each field connection.
3. Wiring Diagrams: Submit manufacturer's electrical requirements for power supply wiring to units. Submit manufacturer's ladder type wiring diagrams for control wiring. Clearly differentiate between portions of wiring that are factory-installed and portions to be field installed.
4. Maintenance Data: Submit maintenance and operating data. Include this data in maintenance manual in accordance with requirements of Division 01.

C. Any specific additional submittal requirements are listed in the applicable specification sections.

PART 2 – PRODUCTS – NOT APPLICABLE

PART 3 - EXECUTION

3.1 ROUGH-IN

- A. Verify final locations for rough-ins with field measurements and with the requirements of the actual equipment to be connected.
- B. Refer to equipment specifications in Divisions 02 through 26 for rough-in requirements.

3.2 MECHANICAL INSTALLATIONS

- A. General: Sequence, coordinate, and integrate the various elements of mechanical systems, materials, and equipment. Comply with the following requirements:
 1. Coordinate mechanical systems, equipment, and materials installation with other building components.
 2. Verify all dimensions by field measurements.

3. Arrange for chases, slots, and openings in other building components during progress of construction, to allow for mechanical installations.
4. Coordinate the installation of required supporting devices and sleeves to be set in poured-in-place concrete and other structural components, as they are constructed.
5. Sequence, coordinate, and integrate installations of mechanical materials and equipment for efficient flow of the Work. Give particular attention to large equipment requiring positioning prior to closing in the building.
6. Where mounting heights are not detailed or dimensioned, install systems, materials, and equipment to provide the maximum headroom possible.
7. Coordinate connection of mechanical systems with exterior underground and overhead utilities and services. Comply with requirements of governing regulations, franchised service companies, and controlling agencies. Provide required connection for each service.
8. Install systems, materials, and equipment to conform with approved submittal data, including coordination drawings, to greatest extent possible. Conform to arrangements indicated by the Contract Documents, recognizing that portions of the Work are shown only in diagrammatic form. Where coordination requirements conflict with individual system requirements, refer conflict to the Architect.
9. Install systems, materials, and equipment level and plumb, parallel and perpendicular to other building systems and components, where installed exposed in finished spaces.

3.3 CUTTING AND PATCHING

- A. General: Perform cutting and patching in accordance with Division 01 Section "CUTTING AND PATCHING". In addition to the requirements specified in Division 01, the following requirements apply:
 1. Protection of Installed Work: During cutting and patching operations, protect adjacent installations.

END OF SECTION

SECTION 230529 - HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and General Provisions of the Contract, including General and Supplementary General Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Steel pipe hangers and supports.
 - 2. Trapeze pipe hangers.
 - 3. Metal framing systems.
 - 4. Thermal-hanger shield inserts.
 - 5. Fastener systems.
 - 6. Equipment supports.
- B. See Section 230548 "Vibration and Seismic Controls for HVAC Piping and Equipment" for vibration isolation devices.

1.3 DEFINITIONS

- A. Terminology: As defined in MSS MSS SP-90, "Guidelines on Terminology for Pipe Hangers and Supports.

1.4 PERFORMANCE REQUIREMENTS

- A. Design supports for multiple pipes capable of supporting combined weight of supported systems, system contents, and test water.
- B. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.

1.5 SUBMITTALS

- A. Product Data: For the following:
 - 1. Steel pipe hangers and supports.
 - 2. Thermal-hanger shield inserts.
 - 3. Powder-actuated fastener systems.

- B. Shop Drawings: Show fabrication and installation details and include calculations for the following:
 - 1. Trapeze pipe hangers. Include Product Data for components.
 - 2. Metal framing systems. Include Product Data for components.
 - 3. Equipment supports.

- C. Welding certificates.

1.6 QUALITY ASSURANCE

- A. Welding: Qualify procedures and personnel according to ASME Boiler and Pressure Vessel Code: Section IX.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

2.2 STEEL PIPE HANGERS AND SUPPORTS

- A. Description: MSS SP-58, Types 1 through 58, factory-fabricated components. Refer to Part 3 "Hanger and Support Applications" Article for where to use specific hanger and support types.
- B. Manufacturers:
 - 1. AAA Technology & Specialties Co., Inc.
 - 2. Bergen-Power Pipe Supports.
 - 3. B-Line Systems, Inc.; a division of Cooper Industries.
 - 4. Carpenter & Paterson, Inc.
 - 5. Empire Industries, Inc.
 - 6. ERICO/Michigan Hanger Co.
 - 7. Globe Pipe Hanger Products, Inc.
 - 8. Grinnell Corp.
 - 9. GS Metals Corp.
 - 10. National Pipe Hanger Corporation.
 - 11. PHD Manufacturing, Inc.
 - 12. PHS Industries, Inc.
 - 13. Piping Technology & Products, Inc.
 - 14. Tolco Inc.
- C. Galvanized, Metallic Coatings: Pregalvanized or hot dipped.
- D. Nonmetallic Coatings: Plastic coating, jacket, or liner.

- E. Padded Hangers: Hanger with fiberglass or other pipe insulation pad or cushion for support of bearing surface of piping.

2.3 TRAPEZE PIPE HANGERS

- A. Description: MSS SP-69, Type 59, shop- or field-fabricated pipe-support assembly made from structural-steel shapes with MSS SP-58 hanger rods, nuts, saddles, and U-bolts.

2.4 METAL FRAMING SYSTEMS

- A. Description: MFMA-3, shop- or field-fabricated pipe-support assembly made of steel channels and other components.
- B. Manufacturers:
 - 1. B-Line Systems, Inc.; a division of Cooper Industries.
 - 2. ERICO/Michigan Hanger Co.; ERISTRUT Div.
 - 3. GS Metals Corp.
 - 4. Power-Strut Div.; Tyco International, Ltd.
 - 5. Thomas & Betts Corporation.
 - 6. Tolco Inc.
 - 7. Unistrut Corp.; Tyco International, Ltd.
- C. Coatings: Manufacturer's standard finish, unless bare metal surfaces are indicated.
- D. Nonmetallic Coatings: Plastic coating, jacket, or liner.

2.5 THERMAL-HANGER SHIELD INSERTS

- A. Description: 100-psig minimum, compressive-strength insulation insert encased in sheet metal shield.
- B. Manufacturers:
 - 1. Carpenter & Paterson, Inc.
 - 2. ERICO/Michigan Hanger Co.
 - 3. PHS Industries, Inc.
 - 4. Pipe Shields, Inc.
 - 5. Rilco Manufacturing Company, Inc.
 - 6. Value Engineered Products, Inc.
- C. Insulation-Insert Material for Cold Piping: Type I calcium silicate, Type II cellular glass with vapor barrier.
- D. Insulation-Insert Material for Hot Piping: Water-repellent treated, ASTM C 533, Type I calcium silicate or ASTM C 552, Type II cellular glass.
- E. For Trapeze or Clamped Systems: Insert and shield shall cover entire circumference of pipe.
- F. For Clevis or Band Hangers: Insert and shield shall cover lower 180 degrees of pipe.
- G. Insert Length: Extend 2 inches beyond sheet metal shield for piping operating below ambient air temperature.

2.6 FASTENER SYSTEMS

- A. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

1. Manufacturers:

- a. Hilti, Inc.
- b. ITW Ramset/Red Head.
- c. Masterset Fastening Systems, Inc.
- d. MKT Fastening, LLC.
- e. Powers Fasteners.

- B. Mechanical-Expansion Anchors: Insert-wedge-type zinc-coated steel, for use in hardened portland cement concrete with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

1. Manufacturers:

- a. B-Line Systems, Inc.; a division of Cooper Industries.
- b. Empire Industries, Inc.
- c. Hilti, Inc.
- d. ITW Ramset/Red Head.
- e. MKT Fastening, LLC.
- f. Powers Fasteners.

2.7 EQUIPMENT SUPPORTS

- A. Description: Welded, shop- or field-fabricated equipment support made from structural-steel shapes.

2.8 MISCELLANEOUS MATERIALS

- A. Structural Steel: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.
- B. Grout: ASTM C 1107, factory-mixed and -packaged, dry, hydraulic-cement, nonshrink and nonmetallic grout; suitable for interior and exterior applications.
1. Properties: Nonstaining, noncorrosive, and nongaseous.
 2. Design Mix: 5000-psi, 28-day compressive strength.

PART 3 - EXECUTION

3.1 HANGER AND SUPPORT APPLICATIONS

- A. Specific hanger and support requirements are specified in Sections specifying piping systems and equipment.
- B. Comply with MSS SP-69 for pipe hanger selections and applications that are not specified in piping system Sections.
- C. Use hangers and supports with galvanized, metallic coatings for piping and equipment that will not have field-applied finish.
- D. Use nonmetallic coatings on attachments for electrolytic protection where attachments are in direct contact with copper tubing.
- E. Use padded hangers for piping that is subject to scratching.
- F. Horizontal-Piping Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
 - 1. Adjustable, Steel Clevis Hangers (MSS Type 1): For suspension of noninsulated or insulated stationary pipes, NPS 1/2 to NPS 30.
 - 2. Yoke-Type Pipe Clamps (MSS Type 2): For suspension of 120 to 450 deg F pipes, NPS 4 to NPS 16 requiring up to 4 inches of insulation.
 - 3. Carbon- or Alloy-Steel, Double-Bolt Pipe Clamps (MSS Type 3): For suspension of pipes, NPS 3/4 to NPS 24 requiring clamp flexibility and up to 4 inches of insulation.
 - 4. Adjustable, Steel Band Hangers (MSS Type 7): For suspension of noninsulated stationary pipes, NPS 1/2 to NPS 8.
 - 5. U-Bolts (MSS Type 24): For support of heavy pipes, NPS 1/2 to NPS 30
 - 6. Pipe Saddle Supports (MSS Type 36): For support of pipes, NPS 4 to NPS 36, with steel pipe base stanchion support and cast-iron floor flange.
 - 7. Single Pipe Rolls (MSS Type 41): For suspension of pipes, NPS 1 to NPS 30, from 2 rods if longitudinal movement caused by expansion and contraction might occur.
 - 8. Complete Pipe Rolls (MSS Type 44): For support of pipes, NPS 2 to NPS 42, if longitudinal movement caused by expansion and contraction might occur but vertical adjustment is not necessary.
- G. Vertical-Piping Clamps: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
 - 1. Extension Pipe or Riser Clamps (MSS Type 8): For support of pipe risers, NPS 3/4 to NPS 20.
 - 2. Carbon- or Alloy-Steel Riser Clamps (MSS Type 42): For support of pipe risers, NPS 3/4 to NPS 20, if longer ends are required for riser clamps.
- H. Hanger-Rod Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types: Steel Turnbuckles (MSS Type 13): For adjustment up to 6 inches for heavy loads.
 - 1. Steel Clevises (MSS Type 14): For 120 to 450 deg F piping installations.

- I. Building Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Steel or Malleable Concrete Inserts (MSS Type 18): For upper attachment to suspend pipe hangers from concrete ceiling.
 2. Top-Beam C-Clamps (MSS Type 19): For use under roof installations with bar-joint construction to attach to top flange of structural shape.
 3. Side-Beam or Channel Clamps (MSS Type 20): For attaching to bottom flange of beams, channels, or angles.
 4. Center-Beam Clamps (MSS Type 21): For attaching to center of bottom flange of beams.
 5. Welded Beam Attachments (MSS Type 22): For attaching to bottom of beams if loads are considerable and rod sizes are large.
 6. C-Clamps (MSS Type 23): For structural shapes.
 7. Welded-Steel Brackets: For support of pipes from below, or for suspending from above by using clip and rod. Use one of the following for indicated loads:
 - a. Light (MSS Type 31): 750 lb.
 - b. Medium (MSS Type 32): 1500 lb.
 - c. Heavy (MSS Type 33): 3000 lb.
 8. Side-Beam Brackets (MSS Type 34): For sides of steel or wooden beams.
 9. Plate Lugs (MSS Type 57): For attaching to steel beams if flexibility at beam is required.
- J. Saddles and Shields: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Steel Pipe-Covering Protection Saddles (MSS Type 39): To fill interior voids with insulation that matches adjoining insulation.
 2. Protection Shields (MSS Type 40): Of length recommended in writing by manufacturer to prevent crushing insulation.
 3. Thermal-Hanger Shield Inserts: For supporting insulated pipe.
- K. Spring Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Spring Cushions (MSS Type 48): For light loads if vertical movement does not exceed 1-1/4 inches.
 2. Spring-Cushion Roll Hangers (MSS Type 49): For equipping Type 41 roll hanger with springs.
 3. Variable-Spring Base Supports (MSS Type 52): Preset to indicated load and limit variability factor to 25 percent to absorb expansion and contraction of piping system from base support.
- L. Comply with MSS SP-69 for trapeze pipe hanger selections and applications that are not specified in piping system Sections.
- M. Comply with MFMA-102 for metal framing system selections and applications that are not specified in piping system Sections.
- N. Use powder-actuated fasteners or mechanical-expansion anchors instead of building attachments where required in concrete construction.

3.2 HANGER AND SUPPORT INSTALLATION

- A. Steel Pipe Hanger Installation: Comply with MSS SP-69 and MSS SP-89. Install hangers, supports, clamps, and attachments as required to properly support piping from building structure.
- B. Trapeze Pipe Hanger Installation: Comply with MSS SP-69 and MSS SP-89. Arrange for grouping of parallel runs of horizontal piping and support together on field-fabricated trapeze pipe hangers.
 - 1. Pipes of Various Sizes: Support together and space trapezes for smallest pipe size or install intermediate supports for smaller diameter pipes as specified above for individual pipe hangers.
 - 2. Field fabricate from ASTM A 36/A 36M, steel shapes selected for loads being supported. Weld steel according to AWS D1.1.
- C. Metal Framing System Installation: Arrange for grouping of parallel runs of piping and support together on field-assembled metal framing systems.
- D. Thermal-Hanger Shield Installation: Install in pipe hanger or shield for insulated piping.
- E. Fastener System Installation:
 - 1. Install powder-actuated fasteners in concrete after concrete is placed and completely cured. Use operators that are licensed by powder-actuated tool manufacturer. Install fasteners according to powder-actuated tool manufacturer's operating manual.
 - 2. Install mechanical-expansion anchors in concrete after concrete is placed and completely cured. Install fasteners according to manufacturer's written instructions.
- F. Install hangers and supports complete with necessary inserts, bolts, rods, nuts, washers, and other accessories.
- G. Equipment Support Installation: Fabricate from welded-structural-steel shapes.
- H. Install hangers and supports to allow controlled thermal and seismic movement of piping systems, to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends, and similar units.
- I. Install lateral bracing with pipe hangers and supports to prevent swaying.
- J. Install building attachments within concrete slabs or attach to structural steel. Install additional attachments at concentrated loads, including valves, flanges, and strainers, NPS 2-1/2 and larger and at changes in direction of piping. Install concrete inserts before concrete is placed; fasten inserts to forms and install reinforcing bars through openings at top of inserts.
- K. Load Distribution: Install hangers and supports so piping live and dead loads and stresses from movement will not be transmitted to connected equipment.
- L. Pipe Slopes: Install hangers and supports to provide indicated pipe slopes and so maximum pipe deflections allowed by ASME B31.1 (for power piping) and ASME B31.9 (for building services piping) are not exceeded.

M. Insulated Piping: Comply with the following:

1. Attach clamps and spacers to piping.
 - a. Piping Operating above Ambient Air Temperature: Clamp may project through insulation.
 - b. Piping Operating below Ambient Air Temperature: Use thermal-hanger shield insert with clamp sized to match OD of insert.
 - c. Do not exceed pipe stress limits according to ASME B31.1 for power piping and ASME B31.9 for building services piping.
2. Install MSS SP-58, Type 39, protection saddles if insulation without vapor barrier is indicated. Fill interior voids with insulation that matches adjoining insulation.
3. Install MSS SP-58, Type 40, protective shields on cold piping with vapor barrier. Shields shall span an arc of 180 degrees.
4. Shield Dimensions for Pipe: Not less than the following:
 - a. NPS 1/4 to NPS 3-1/2: 12 inches long and 0.048 inch thick.
 - b. NPS 4: 12 inches long and 0.06 inch thick.
 - c. NPS 5 and NPS 6: 18 inches long and 0.06 inch thick.
 - d. NPS 8 to NPS 14: 24 inches long and 0.075 inch thick.
 - e. NPS 16 to NPS 24: 24 inches long and 0.105 inch thick.
5. Pipes NPS 8 and Larger: Include wood inserts.
6. Insert Material: Length at least as long as protective shield.
7. Thermal-Hanger Shields: Install with insulation same thickness as piping insulation.

3.3 EQUIPMENT SUPPORTS

- A. Fabricate structural-steel stands to suspend equipment from structure overhead or to support equipment above floor.
- B. Grouting: Place grout under supports for equipment and make smooth bearing surface.
- C. Provide lateral bracing, to prevent swaying, for equipment supports.

3.4 METAL FABRICATIONS

- A. Cut, drill, and fit miscellaneous metal fabrications for trapeze pipe hangers and equipment supports.
- B. Fit exposed connections together to form hairline joints. Field weld connections that cannot be shop welded because of shipping size limitations.
- C. Field Welding: Comply with AWS D1.1 procedures for shielded metal arc welding, appearance and quality of welds, and methods used in correcting welding work, and with the following:
 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 2. Obtain fusion without undercut or overlap.
 3. Remove welding flux immediately.

4. Finish welds at exposed connections so no roughness shows after finishing and contours of welded surfaces match adjacent contours.

3.5 ADJUSTING

- A. Hanger Adjustments: Adjust hangers to distribute loads equally on attachments and to achieve indicated slope of pipe.

3.6 PAINTING

- A. Touch Up: 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. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION

SECTION 230593 - TESTING, ADJUSTING, AND BALANCING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 01 Specifications sections, apply to work of the section.

1.3 SUMMARY

- A. This Section includes TAB produce design objectives for the following:
 - 1. Air Systems:
 - 2. HVAC equipment quantitative-performance settings.
 - 3. Verifying that automatic control devices are functioning properly.
 - 4. Reporting results of activities and procedures specified in this Section.

1.4 SUBMITTALS

- A. Strategies and Procedures Plan: Within 30 days from Contractor's Notice to Proceed, submit 2 copies of TAB strategies and step-by-step procedures. Include a complete set of report forms intended for use on this Project.
- B. Certified TAB Reports: Submit two copies of reports prepared as specified in this Section on approved forms certified by TAB firm.
- C. Warranties specified in this Section.

1.5 QUALITY ASSURANCE

- A. TAB Firm Qualifications: Engage a TAB firm certified by NEBB or TBI.
- B. Certification of TAB Reports: Certify TAB field data reports. This certification includes the following:
 - 1. Review field data reports to validate accuracy of data and to prepare certified TAB reports.
 - 2. Certify that TAB team complied with approved TAB plan and the procedures specified and referenced in this Specification.
- C. TAB Report Forms: Use standard forms from NEBB's/TBI "Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems" or SMACNA's "HVAC Systems - Testing, Adjusting, and Balancing."

1.6 COORDINATION

- A. Coordinate the efforts of factory-authorized service representatives for systems and equipment, HVAC controls installers, and other mechanics to operate HVAC systems and equipment to support and assist TAB activities.

1.7 WARRANTY

- A. Special Guarantee: Provide a guarantee on NEBB/TBI forms stating that NEBB/TBI will assist in completing requirements of the Contract Documents if TAB firm fails to comply with the Contract Documents. Guarantee shall include the following provisions:
 - 1. The certified TAB firm has tested and balanced systems according to the Contract Documents.
 - 2. Systems are balanced to optimum performance capabilities within design and installation limits.

PART 2 - PRODUCTS

2.1 ADJUSTING, BALANCING, TESTING AND INSPECTION

- A. Procedure: Testing, balancing, and adjusting shall be performed in accordance with NEBB/TBI Procedural Standards for Testing-Adjusting-Balancing of Environmental Systems, using approved field instruments specified and rendering a concise, certified report of results. Testing for leakage of high pressure ductwork systems shall be performed in accordance with SMACNA Manual for the Balancing and Adjustment of Air Distribution Systems.
- B. Field tests: Proposed testing program shall be submitted to the engineer at least two weeks prior to the scheduled test to assure agreement as to personnel and instrumentation required and scope of testing program.

2.2 TEST DATA

- A. Typewritten schedules of readings taken during the balancing and testing operations indicating the required or specified reading, the first reading, and the final balanced reading shall be provided for the following:
 - 1. Air Balance:
 - a. Fans: Size, type, speed in rpm, outlet velocity in fpm, static pressure in inches water gauge, air quantity in cfm, and motor load in amperes.
 - b. Furnaces: Sizes, types, fan speed in rpm, outlet velocity in fpm, external static pressure in inches water gauge, air quantity in cfm, and motor load in amperes.
 - c. Air Outlets and Inlets: Size, velocity in fpm, and air quantity in cfm.

PART 3 - EXECUTION

3.1 GENERAL

- A. The following air systems located in buildings shall be balanced.
 - 1. All heating units.
 - 2. All cooling units.
 - 3. All diffusers and registers per volumes on plans.

3.2 DUCT SYSTEM

- A. Duct systems shall be balanced to provide not less than their design cfm. Terminal units, registers, and grilles, shall be balanced to plus or minus 5 percent of their design cfm.

3.3 TEST OPENING

- A. Securely plug openings in ducts and repair insulation upon completion of balancing.

END OF SECTION

SECTION 230713 - MECHANICAL INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and General Provisions of Contract, including General and Supplementary Conditions and Division 01 Specification sections, apply to work of this section.

1.2 SUMMARY

- A. Extent of mechanical insulation required by this section is indicated on drawings and schedules, and by requirements of this section.
- B. Types of mechanical insulation specified in this section include the following:
 - 1. Piping System Insulation:
 - a. Flexible Unicellular
 - 2. Ductwork System Insulation:
 - a. Fiberglass.
- C. Related Sections: The following Sections contain requirements that relate to this Section.
 - 1. Division 23 Section "Supports and Anchors" for protection saddles, protection shields, and thermal hanger shields; not work of this section.
 - 2. Division 23 Section "Metal Ductwork" for duct linings; not work of this section.
 - 3. Division 23 Section "Mechanical Identification" for installation of identification devices for piping, ductwork, and equipment; not work of this section.

1.3 SUBMITTALS

- A. Refer to Section 230010 "Basic Mechanical Requirements".
- B. Product Data: Submit manufacturer's technical product data and installation instructions for each type of mechanical insulation. Submit schedule showing manufacturer's product number, k-value, thickness, and furnished accessories for each mechanical system requiring insulation.

1.4 QUALITY ASSURANCE

- A. Installer's Qualifications: Firm with at least five (5) years successful installation experience on projects with mechanical insulations similar to that required for this project.
- B. Flame/Smoke Ratings: Provide composite mechanical insulation (insulation, jackets, coverings, sealers, mastic and adhesives) with flame-spread index of 25 or less, and smoke-developed index of 50 or less, as tested by ASTM E 84 (NFPA 255) method.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Refer to Section 230010 "Basic Mechanical Requirements".
- B. Deliver insulation, coverings, cements, adhesives, and coatings to site in containers with manufacturer's stamp or label, affixed showing fire hazard indexes of products.
- C. Protect insulation against dirt, water, and chemical and mechanical damage. Do not install damaged or wet insulation; remove from project site.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products of one of the following:
 - 1. ArmaCell
 - 2. Babcock & Wilcox; Insulating Products Div.
 - 3. CertainTeed Manson.
 - 4. Knauf Fiber Glass GmbH.
 - 5. Johns Manville
 - 6. Owens-Corning Fiberglass Corp.
 - 7. Pittsburgh Corning Corp.
 - 8. Rubatex Corp.

2.2 PIPING INSULATION MATERIALS

- A. Flexible Unicellular Piping Insulation: ASTM C 534, Type I.
- B. Jackets for Piping Insulation: ASTM C 1136, Type I for piping with temperatures below ambient, Type II for piping with temperatures above ambient. Type I may be used for all piping at Installers option.
- C. Staples, Bands, Wires, and Cement: As recommended by insulation manufacturer for applications indicated.

- D. Adhesives, Sealers, and Protective Finishes: As recommended by insulation manufacturer for applications indicated.
- E. Removable/Reusable Insulation Valve Covers: Two piece, silicone impregnated finish, Type E glass fiber insulation. Multiglas Products Co., MULTI COV-R, or approved equal.

2.3 DUCTWORK INSULATION MATERIALS

- A. Rigid Fiberglass Ductwork Insulation: ASTM C 612, Class 1, 6 LBS/FT³
- B. Flexible Fiberglass Ductwork Insulation: ASTM C 553, Type I, Class B-4, ¾" FT³.
- C. Jackets for Ductwork Insulation: Foil-Skrim-Kraft (FSK) ASTM C 1136, Type I for ductwork with temperatures below ambient; Type II for ductwork with temperatures above ambient.
- D. Ductwork Insulation Accessories: Provide staples, bands, tape, anchors, corner angles and similar accessories as recommended by insulation manufacturer for applications indicated.
- E. Ductwork Insulation Compounds: Provide cements, adhesives, coatings, sealers, protective finishes and similar compounds as recommended by insulation manufacturer for applications indicated.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine areas and conditions under which mechanical insulation is to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

3.2 HVAC PIPING SYSTEM INSULATION

- A. Cold Piping (below 40 deg. F) Application Requirements: Insulate the following sub-freezing HVAC piping systems:
 - 1. Refrigerant suction lines between evaporators and compressors.
 - 2. Insulate each piping system specified above with one of the following types and thicknesses of insulation:
 - a. Flexible Unicellular: ½ inch thick.

3.1 DUCTWORK SYSTEM INSULATION

A. Ductwork Application Requirements: Insulate the following ductwork:

1. Outdoor air intake ductwork between air entrance and fan inlet or HVAC unit inlet.
2. HVAC supply ductwork between fan discharge, or HVAC unit discharge, and room terminal outlet.
3. HVAC return ductwork in mechanical equipment rooms or installed outdoors and attic space.
4. HVAC plenums and unit housings not pre-insulated at factory or lined.
5. Exhaust fan and gravity relief plenums and ductwork.
6. Insulate each ductwork system specified above with one of the following types and thicknesses of insulation:
HVAC Supply Ductwork:
 - a. Rigid Fiberglass: 2 inch thick, for indoor exposed ductwork;
 - b. Flexible Fiberglass: 2.2 inch thick (R=6), application limited to indoor concealed locations.

3.2 INSTALLATION OF PIPING INSULATION

- A. General: Install insulation products in accordance with manufacturer's written instructions, and in accordance with recognized industry practices to ensure that insulation serves its intended purpose.
- B. Install insulation on pipe systems subsequent to installation of heat tracing, painting, testing, and acceptance of tests.
- C. Install insulation materials with smooth and even surfaces. Insulate each continuous run of piping with full-length units of insulation, with single cut piece to complete run. Do not use cut pieces or scraps abutting each other.
- D. Clean and dry pipe surfaces prior to insulating. Butt insulation joints firmly together to ensure complete and tight fit over surfaces to be covered.
- E. Maintain integrity of vapor-barrier jackets on pipe insulation, and protect to prevent puncture or other damage.
- F. Cover valves, fittings, air separators and all other piping system components in each piping system with equivalent thickness and composition of insulation as applied to adjoining pipe run. Install factory molded, precut or job fabricated units (at Installer's option) except where specific form or type is indicated.
- G. Extend piping insulation without interruption through walls, floors and similar piping penetrations, except where otherwise indicated.
- H. Butt pipe insulation against pipe hanger insulation inserts. For hot pipes, apply 3 inch wide vapor barrier tape or band over the butt joints. For cold piping apply wet coat of vapor barrier lap cement on butt joints and seal joints with 3 inch wide vapor barrier tape or band.
- I. Provide removable valve covers for valves which must be accessed periodically.

3.3 INSTALLATION OF DUCTWORK INSULATION

- A. General: Install insulation products in accordance with manufacturer's written instructions, and in accordance with recognized industry practices to ensure that insulation serves its intended purpose.
- B. Install insulation materials with smooth and even surfaces.
- C. Clean and dry ductwork prior to insulating. Butt insulation joints firmly together to ensure complete and tight fit over surfaces to be covered.
- D. Maintain integrity of vapor-barrier on ductwork insulation, and protect it to prevent puncture and other damage.
- E. Extend ductwork insulation without interruption through walls, floors and similar ductwork penetrations, except where otherwise indicated.
- F. Lined Ductwork: Except as otherwise indicated, omit insulation on ductwork where internal insulation or sound absorbing linings have been installed. Exception - Attic Space.
- G. Corner Angles: Install corner angles on external corners of insulation on ductwork in exposed finished spaces before covering with jacketing.

3.4 PROTECTION AND REPLACEMENT

- A. Replace damaged insulation which cannot be repaired satisfactorily, including units with vapor barrier damage and moisture saturated units.
- B. Protection: Insulation Installer shall advise Contractor of required protection for insulation work during remainder of construction period, to avoid damage and deterioration.

END OF SECTION

SECTION 232300 - REFRIGERANT PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary conditions and Division 01 Specifications sections, apply to work of this section.

1.2 WORK INCLUDED

- A. This Section includes refrigerant piping used for air conditioning applications. This Section includes:

- 1. Pipes, tubing, fittings, and specialties.
- 2. Refrigerants.

1.3 COORDINATION

- A. Coordinate all work indicated in this section with all work included and specified elsewhere in the project.

- B. Coordinate all work to be performed with actual field and project conditions. At a minimum, Contractor is to perform the following tasks prior to submitting bids or shop drawings for the project:

- 1. Perform field investigations to determine all necessary incidental items which will be required for complete and proper installation of all work. Verify all items affecting the bid price prior to bidding.
- 2. Perform all necessary field measurements to provide complete, accurate, and coordinated shop drawing submittals.
- 3. Organize and attend all necessary coordination meetings required to assure proper coordination and installation of all related work included in the project.

1.4 SUBMITTALS

- A. Product data for the following products:

- 1. Each type valve specified.
- 2. Each type refrigerant piping specialty specified.

- B. Shop Drawings showing layout of refrigerant piping, specialties, and fittings including, but not necessarily limited to, pipe and tube sizes, valve arrangements and locations, slopes of horizontal runs, wall and floor penetrations, and equipment connection details. Show interface and spatial relationship between piping and proximate to equipment.

1.5 QUALITY ASSURANCE

- A. Qualify brazing processes and brazing operators in accordance with ASME "Boiler and Pressure Vessel Code", Section IX, "Welding and Brazing Qualifications."
- B. Regulatory Requirements: Comply with provisions of the following codes:
 - 1. ANSI B31.5: ASME Code for Pressure Piping - Refrigerant Piping.
 - 2. ANSI/ASHRAE Standard 15: Safety Code for Mechanical Refrigeration.

1.6 SEQUENCING AND SCHEDULING

- A. Coordinate the installation of roof piping supports, and roof penetrations. Roof specialties are specified in Division 7.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- B. Refrigerant Valves and Specialties:
 - 1. Alco Controls Div, Emerson Electric.
 - 2. Danfoss Electronics, Inc.
 - 3. EATON Corporation, Control Div.
 - 4. Henry Valve Company.
 - 5. Parker-Hannifin Corporation, Refrigeration and Air Conditioning Division.
 - 6. Sporlan Valve Company.

2.2 PIPE AND TUBING MATERIALS

- A. General: Refer to Part 3, Article "PIPE APPLICATION" for identification of systems where the below specified pipe and fitting materials are used.
- B. Copper Tubing: ASTM B 280, Type ACR, hard-drawn straight lengths, and soft-annealed coils, seamless copper tubing. Tubing shall be factory cleaned, ready for installation, and have ends capped to protect cleanliness of pipe interiors prior to shipping.

2.3 FITTINGS

- A. Wrought-Copper Fittings: ANSI B16.22, streamlined pattern.

2.4 JOINING MATERAILS

- A. Brazing Filler Materials: AWS A5.8, Classification BAg-1 (Silver).

2.5 VALVES

- A. General: Complete valve assembly shall be UL-listed and designed to conform to ARI 760.
- B. Globe: 450 psig maximum operating pressure, 275 deg. F maximum operating temperature; cast bronze body, with cast bronze or forged brass wing cap and bolted bonnet; replaceable resilient seat disc; plated steel stem. Valve shall be capable of being repacked under pressure. Valve shall be straight through or angle pattern, with solder-end connections.
- C. Solenoid Valves: 250 deg. F temperature rating, 400 psig working pressure; forged brass, with Teflon valve seat, two-way straight through pattern, and solder end connections. Provide manual operator to open valve. Furnish complete with NEMA 1 solenoid enclosure with 1/2 inch conduit adapter, and 24 volt, 60 Hz. normally closed holding coil.
- D. Thermal Expansion Valves: Thermostatic adjustable, modulating type; size as required for specific evaporator requirements, and factory set for proper evaporator superheat requirements. Valves shall have copper fittings for solder end connections; complete with sensing bulb, a distributor having a side connection for hot gas bypass line, and an external equalizer line.

2.6 REFRIGERANT PIPING SPECIALTIES

- A. General: Complete refrigerant piping specialty assembly shall be UL-listed and designed to conform to ARI 760.
- B. Moisture/liquid Indicators (Sight Glasses): 500 psig maximum operation pressure, 200 deg. F maximum operating temperature; forged brass body, with replaceable polished optical viewing window, and solder end connections.
- C. Suction Line Filter-Drier: 350 psig maximum operation pressure, 225 deg. F maximum operating temperature; steel shell, and wrought copper fittings for solder end connections. Permanent filter element shall be molded felt core surrounded by a desiccant for removal of acids and moisture from refrigerant vapor.
- D. Flexible Connectors: 500 psig maximum operating pressure; seamless tin bronze or stainless steel core, high tensile bronze braid covering, solder connections, and synthetic covering; dehydrated, pressure tested, minimum 7 inch in length.

2.7 REFRIGERANT

- A. Refrigerant No. 410A, in accordance with ASHRAE Standard 34.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine rough-in for refrigerant piping systems to verify actual locations of piping connections prior to installation.

3.2 PIPE APPLICATIONS

- A. Use Type ACR drawn copper tubing with wrought copper fittings and brazed joints above ground, within building.
- B. If other than Type ACR tubing is used, clean and protect inside of tubing as specified in Article "CLEANING" below.

3.3 PIPING INSTALLATIONS

- A. General: Install refrigerant piping in accordance with ASHRAE Standard 15 - "The Safety Code for Mechanical Refrigeration."
- B. Install piping in as short and direct arrangement as possible to minimize pressure drop.
- C. Install piping for minimum number of joints using as few elbows and other fitting as possible.
- D. Arrange piping to allow normal inspection and servicing of compressor and other equipment. Install valves and specialties in accessible locations to allow for servicing and inspection.
- E. Provide adequate clearance between pipe and adjacent walls and hanger, or between pipes for insulation installation. Use sleeves through floors, walls, or ceilings, sized to permit installation of full thickness insulation.
- F. Insulate suction lines. Liquid lines are not required to be insulated, except where they are installed adjacent and clamped to suction lines, where both liquid and suction lines shall be insulated as a unit.
 - 1. Do not install insulation until system testing has been completed and all leaks have been eliminated.
- G. Install branch tie-in lines to parallel compressors equal length, and pipe identically and symmetrically.
- H. Slope refrigerant piping as follows:
 - 1. Install horizontal hot gas discharge piping with 1/2 inch per 10 feet downward slope away from the compressor.
 - 2. Install horizontal suction lines with 1/2 inch per 10 feet downward slope to the compressor, with no long traps or dead ends which may cause oil to separate from the suction gas and return to the compressor in damaging slugs.

3. Install traps and double risers where indicated, and where required to entrain oil in vertical runs.
 4. Liquid lines may be installed level.
- I. Use fittings for all changes in direction and all branch connections.
 - J. Install exposed piping at right angles or parallel to building walls. Diagonal runs are not permitted, unless expressly indicated.
 - K. Install piping free of sags or bends and with ample space between piping to permit proper insulation applications.
 - L. Conceal all pipe installations in walls, pipe chases, utility spaces, above ceilings, below grade or floors, unless indicated to be exposed to view.
 - M. Install piping tight to slabs, beams, joists, columns, walls, and other permanent elements of the building. Provide space to permit insulation applications, with 1 inch clearance outside the insulation. Allow sufficient space above removable ceiling panels to allow for panel removal.
 - N. Locate groups of pipes parallel to each other, spaced to permit applying insulation and servicing of valves.
 - O. Exterior Wall Penetrations: Seal pipe penetrations through exterior walls using sleeves and mechanical sleeve seals. Pipe sleeves smaller than 6 inch shall be steel; pipe sleeves 6 inch and larger shall be sheet metal.
 - P. Fire Barrier Penetrations: Where pipes pass through fire rated walls, partitions, ceilings, and floors, maintain the fire rated integrity. Refer to Division 7 for special sealers and materials.
 - Q. Make reductions in pipe sizes using eccentric reducer fittings installed with the level side down.
 - R. Install strainers immediately ahead of each expansion valve, solenoid valve, hot gas bypass valve, compressor suction valve, and as required to protect refrigerant piping system components.
 - S. Install moisture/liquid indicators in liquid lines between filter/driers and thermostatic expansion valves and in liquid line to receiver.
 - T. Install flexible connectors at the inlet and discharge connection of compressors.
- 3.4 HANGER AND SUPPORTS
- A. General: Hangers, supports, and anchors are specified in Division 23 Section "Supports and Anchors". Conform to the table below for maximum spacing of supports:
 - B. Install the following pipe attachments:
 1. Adjustable steel clevis hangers for individual horizontal runs less than 20 feet in length.
 2. Roller hangers and spring hangers for individual horizontal runs 20 feet or longer.

3. Pipe rollers complete supports for multiple horizontal runs, 20 feet or longer supported by a trapeze.
4. Spring hangers to support vertical runs.

C. Install hangers with the following minimum rod sizes and maximum spacing:

<u>NOM. PIPE SIZE-INCH</u>	<u>MAX. SPAN-FT</u>	<u>MIN. ROD SIZE - INCH</u>
1	7	3/8
1-1/2	9	3/8
2	10	3/8
3	12	1/2
3-1/2	13	1/2
4	14	5/8
5	16	5/8
6	17	3/4
8	19	7/8
10	22	7/8
12	23	7/8

D. Support vertical runs at each floor.

3.5 PIPE JOINT CONSTRUCTION

- A. Brazed Joints: Comply with the procedures contained in the AWS "Brazing Manual."
- B. WARNING: Some filler metals contain compounds which produce highly toxic fumes when heated. Avoid breathing fumes. Provide adequate ventilation.
- C. CAUTION: When solenoid valves are being installed, remove the coil to prevent damage. When sight glasses are being installed, remove the glass. Remove stems, seats, and packing of valves, and accessible internal parts of refrigerant specialties before brazing. Do not apply heat near the bulb of the expansion valve.
- D. Fill the pipe and fittings during brazing, with an inert gas (i.e., nitrogen or carbon dioxide) to prevent formation of scale.
- E. Heat joints using oxy-acetylene torch. Heat to proper and uniform brazing temperature.

3.6 VALVE INSTALLATIONS

- A. General: Install refrigerant valves where indicated, and in accordance with manufacturer's instructions.
- B. Thermostatic expansion valves may be mounted in any position, as close as possible to the evaporator.
- C. Where refrigerant distributors are used, mount the distributor directly on the expansion valve outlet.

- D. Install the valve in such a location so that the diaphragm case is warmer than the bulb.
- E. Secure the bulb to a clean, straight, horizontal section of the suction line using two bulb straps. Do not mount bulb in a trap or at the bottom of the line.
- F. Where external equalizer lines are required make the connection where it will clearly reflect the pressure existing in the suction line at the bulb location.

3.7 EQUIPMENT CONNECTIONS

- A. The Drawings indicate the general arrangement of piping, fittings, and specialties.
- B. Install piping adjacent to machine to allow servicing and maintenance.

3.8 FIELD QUALITY CONTROL

- A. Inspect, test, and perform corrective action of refrigerant piping in accordance with ASME Code B31.5, Chapter VI.
- B. Repair leaking joints using new materials, and retest for leaks.

3.9 CLEANING

- A. Before installation of copper tubing other than Type ACR tubing, clean the tubing and fitting using following cleaning procedure:
- B. Remove coarse particles of dirt and dust by drawing a clean, lintless cloth through the tubing by means of a wire or an electrician's tape.
- C. Draw a clean, lintless cloth saturated with trichloroethylene through the tube or pipe. Continue this procedure until cloth is not discolored by dirt.
- D. Draw a clean, lintless cloth, saturated with compressor oil, squeezed dry, through the tube or pipe to remove remaining lint. Inspect tube or pipe visually for remaining dirt and lint.
- E. Finally, draw a clean, dry, lintless cloth through the tube or pipe.

3.10 ADJUSTING AND CLEANING

- A. Verify actual evaporator applications and operating conditions, and adjust thermostatic expansion valve to obtain proper evaporator superheat requirements.
- B. Clean and inspect refrigerant piping systems for completion of joints, supports and accessory items.
- C. Adjust controls and safeties. Replace damaged or malfunctioning controls and equipment with new materials and products.

3.11 COMMISSIONING

- A. Charge system using the following procedure:
 - 1. Install core in filter dryer after leak test but before evacuation.
 - 2. Evacuate refrigerant system with vacuum pump; until temperature of 35 deg F is indicated on vacuum dehydration indicator.
 - 3. During evacuation, apply heat to pockets, elbows, and low spots in piping.
 - 4. Maintain vacuum on system for minimum of 5 hours after closing valve between vacuum pump and system.
 - 5. Break vacuum with refrigerant gas, allow pressure to build up to 2 psi.
 - 6. Complete charging of system, using new filter dryer core in charging line. Provide full operating charge.
- B. Train Owner's maintenance personnel on procedures and schedules related to start-up and shut-down, troubleshooting, servicing, and preventative maintenance of refrigerant piping valves and refrigerant piping specialties.

END OF SECTION

SECTION 233113 - METAL DUCTWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes rectangular, round, and flat-oval metal ducts and plenums for heating, ventilating, and air conditioning systems.
- B. Related Sections: The following sections contain requirements that relate to this Section:
 - 1. Division 08 Section "Access Doors" for wall- and ceiling-mounted access doors for access to concealed ducts.
 - 2. Division 10 Section "Louvers and Vents" for intake and relief louvers and vents connected to duct systems and installed in exterior walls.
 - 3. Division 23 Section "Basic Mechanical Materials and Methods" for joint sealers for fire-resistant sealants for use around duct penetrations and fire damper installations in fire rated floors, partitions, and walls.
 - 4. Division 23 Section "Mechanical Insulation" for duct and plenum insulation.
 - 5. Division 23 Section "Ductwork Accessories" for flexible duct materials, dampers, duct-mounted access panels and doors, and turning vanes.
 - 6. Division 23 Section "Air Outlets and Inlets" for diffusers, registers, and grilles.
 - 7. Division 23 Section "Testing, Adjusting, and Balancing."

1.3 SYSTEM PERFORMANCE REQUIREMENTS

- A. The duct system as indicated has been designed to select and size air moving and distribution equipment and other components of the air system. Changes or alterations to the layout or configuration of the duct system must be specifically approved in writing. Accompany requests for layout modifications with calculations showing that the proposed layout will provide the original design results without increasing the total system pressure.

1.4 SUBMITTALS

- A. Refer to Section 230010 "Basic Mechanical Requirements".
- B. Product data including details of construction relative to materials, dimensions of individual components, profiles, and finishes for the following items:
 - 1. Duct Liner.
 - 2. Sealing Materials.
 - 3. Fire-Stopping Materials
 - 4. Contractor's Duct Fabrication Standards.

- C. Shop drawings for duct fabrication drawn to a scale not smaller than 1/4 inch equals 1 foot, on drawing sheets same size as the Contract Drawings, detailing:
1. Fabrication, assembly, and installation details, including plans, elevations, sections, details of components, and attachments to other work.
 2. Duct layout, indicating pressure classifications and sizes in plan view. For exhaust ducts systems, indicate the classification of the materials handled as defined in this Section. Indicate:
 - a. Fittings.
 - b. Reinforcing details and spacing.
 - c. Seam and joint construction details.
 - d. Penetrations through fire-rated and other partitions.
 - e. Terminal unit, coil, and humidifier installations.
 - f. Hangers and supports, including methods for building attachment, vibration isolation, and duct attachment.
- D. Add ductwork to coordination drawings in accordance with Division 23 Section "Basic Mechanical Requirements". In addition to the requirements specified in "Basic Mechanical Requirements" show the following:
1. Coordination with ceiling suspension members.
 2. Spatial coordination with other systems installed in the same space with the duct systems.
 3. Coordination of ceiling- and wall-mounted access doors and panels required to provide access to dampers and other operating devices.
 4. Coordination with ceiling-mounted lighting fixtures and air outlets and inlets.
- E. Record drawings including duct systems routing, fittings details, reinforcing, support, and installed accessories and devices, in accordance with Division 23 Section "Basic Mechanical Requirements" and Division 01.

1.5 QUALITY ASSURANCE

- A. SMACNA: In general, all ductwork systems shall be fabricated and installed in accordance with the latest edition of SMACNA's, "HVAC Duct Construction Standards" including all addenda. Where conflicts exist between SMACNA standards and this section, provide the more stringent option.
- B. Qualify welding processes and welding operators in accordance with AWS D1.1 "Structural Welding Code - Steel" for hangers and supports and AWS D9.1 "Sheet Metal Welding Code."
- C. NFPA Compliance: Comply with the most current version of the following NFPA Standards:
1. NFPA 90A, "Standard for the Installation of Air Conditioning and Ventilating Systems", except as indicated otherwise.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Refer to Section 230010 "Basic Mechanical Requirements".
- B. Deliver sealant and fire-stopping materials to site in original unopened containers or bundles with labels informing about manufacturer, product name and designation, color, expiration period for use, pot life, curing time, and mixing instructions for multi- component materials.
- C. Store and handle sealant and fire-stopping materials in compliance with manufacturers' recommendations to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

PART 2 - PRODUCTS

2.1 SHEET METAL MATERIALS

- A. Sheet Metal, General: Provide sheet metal in thicknesses indicated, packaged and marked as specified in ASTM A 700.
- B. Galvanized Sheet Steel: Lock-forming quality, ASTM A-653 and A-924, Coating Designation G 90. Galvanized steel ducts that will be exposed to view shall have a paint-grip finish.
- C. Carbon Steel Sheets: ASTM A 366, cold-rolled sheets, commercial quality, with oiled, exposed matte finish.
- D. Reinforcement Shapes and Plates: Unless otherwise indicated, provide galvanized steel reinforcing where installed on galvanized sheet metal ducts. For aluminum and stainless steel ducts provide reinforcing of compatible materials.

2.2 DUCT LINER

- A. General: Provide acoustical duct liner of following type and manufacturer.
 - 1. Manville Permacote Linacoustic
- B. General: Comply with NFPA Standard 90A and TIMA Standard AHC 101.
- C. Materials: ASTM C 1071, Type II, with coated surface exposed to airstream to prevent erosion of glass fibers.
 - 1. Thickness: 1 inch.
 - 2. Density: 1-1/2 pounds.
 - 3. Thermal Performance: "K-Factor" equal to 0.28 or better, at a mean temperature of 75 deg F.
 - 4. Fire Hazard Classification: Flame spread rating of not more than 25 without evidence of continued progressive combustion and a smoke developed rating of no higher than 50, when tested in accordance with ASTM C 411.
 - 5. Liner Adhesive: Comply with NFPA Standard 90A and ASTM C 916.
 - 6. Liner Coating: Manville Super Seal Duct Butter.

7. Mechanical Fasteners: Galvanized steel, suitable for adhesive attachment, mechanical attachment, or welding attachment to duct. Provide fasteners that do not damage the liner when applied as recommended by the manufacturer, that do not cause leakage in the duct, and will indefinitely sustain a 50-pound tensile dead load test perpendicular to the duct wall.
 - a. Fastener Pin Length: As required for thickness of insulation, and without projecting more than 1/8 inch into the airstream.
 - b. Adhesive for Attachment of Mechanical Fasteners: Comply with the "Fire Hazard Classification" of duct liner system.

2.3 SEALING MATERIALS

- A. Joint and Seam Sealant: One-part, nonsag, solvent-release-curing, polymerized butyl sealant complying with FS TT-S-001657, Type I; formulated with a minimum of 75 percent solids.
- B. Flanged Joint Mastics: One-part, acid-curing, silicone elastomeric joint sealants, complying with ASTM C 920, Type S, Grade NS, Class 25, Use O.

2.4 FIRE-STOPPING

- A. Refer to Division 23 Section "Basic Mechanical Materials and Methods" for fire-stopping.

2.5 HANGERS AND SUPPORTS

- A. Building Attachments: See Section 230529 "Hangers and Supports for HVAC Piping and Equipment".
- B. Hangers: Galvanized sheet steel, or round, uncoated steel, threaded rod.
 1. Hangers Installed In Corrosive Atmospheres: Electro-galvanized, all-thread rod or hot-dipped-galvanized rods with threads painted after installation.
- C. Trapeze and Riser Supports: Steel shapes conforming to ASTM A 36.
 1. Where galvanized steel ducts are installed, provide hot-dipped- galvanized steel shapes and plates.
 2. For stainless steel ducts, provide stainless steel support materials.
 3. For aluminum ducts, provide aluminum support materials, except where materials are electrolytically separated from ductwork.

2.6 DUCT SYSTEMS CONSTRUCTION

- A. General: Except as otherwise indicated, fabricate ducts with galvanized sheet steel, in accordance with the latest edition of SMACNA "HVAC Duct Construction Standards". Conform to the requirements in the referenced standard for metal thickness, reinforcing types and intervals, tie rod applications, and joint types and intervals.
- B. "Basic Round Diameter" is defined in this article as the diameter of the size of round duct that has a circumference equal to the perimeter of a given size of flat oval duct. Except where interrupted by fittings, provide round and flat oval ducts in lengths not less than 12 feet.

- C. Single Wall Round Ducts: Fabricate round supply ducts with spiral lockseam construction, (without intermediate ribs) except where diameters exceed 72 inch. Fabricate ducts having diameters greater than 72 inch with longitudinal butt-welded seams.

2.7 APPLICATION OF LINER IN DUCTS

- A. Install a continuous single layer, specified of duct liner thickness with 90 percent coverage of adhesive at liner contact surface area. Multiple layers of insulation to achieve indicated thickness is prohibited.
- B. Apply a coat of liner coating to all exposed liner edges.
- C. Butt join all transverse joints and longitudinal seams without gaps and join with adhesive.
- D. Fold and compress liner in corners of rectangular ducts or cut and fit to assure butted edge overlapping.
- E. Longitudinal joints in rectangular ducts shall not occur except at corners of ducts.
- F. Secure liner with mechanical fasteners 4 inch from corners and at intervals not exceeding 12 inch transversely around perimeter; at 3 inch from transverse joints and at intervals not exceeding 18 inch longitudinally.
- G. Secure transversely oriented liner edges facing the airstream with metal nosings that are either channel or "Z" profile or are integrally formed from the duct wall at the following locations:
 - 1. Fan discharge.
 - 2. Intervals of lined duct preceded by unlined duct.
- H. Secure insulation liner with perforated sheet metal liner of the same gauge specified for the duct, secured to ducts with mechanical fasteners that maintain metal liner distance from duct without compressing insulation. Provide 3/32-inch-diameter perforations, with an overall open area of 23 percent.
- I. Terminate liner with duct buildouts installed in ducts to attach dampers, turning vane assemblies, and other devices. Fabricated buildouts (metal hat sections) or other buildout means are optional; when used, secure buildouts to the duct wall with bolts, screws, rivets, or welds. Terminate liner at fire dampers at connection to fire damper sleeve through fire separation.
- J. Repair all accidental tears and rips in soundliner. Restore factory applied black acrylic coating to its original state.
- K. Provide clinch lock branch connections for all branch connections. This includes supply diffuser take-offs.

PART 3 - EXECUTION

3.1 DUCT INSTALLATION, GENERAL

- A. Static Pressure Classifications: Except where otherwise indicated, construct duct systems to the following pressure classifications:
1. Supply Ducts: 2 inch water gauge, positive pressure.
 2. Return Ducts: 1 inch water gauge, negative pressure.
 3. General Exhaust Ducts: 1 inch water gauge, negative pressure.
- B. Install ducts with the fewest possible joints.
- C. Use fabricated fittings for all changes in directions, changes in size and shape, and connections.
- D. Install couplings tight to duct wall surface with projections into duct at connections kept to a minimum.
- E. Locate ducts, except as otherwise indicated, vertically and horizontally, parallel and perpendicular to building lines; avoid diagonal runs. Install duct systems in shortest route that does not obstruct useable space or block access for servicing building and its equipment.
- F. Install ducts close to walls, overhead construction, columns, and other structural and permanent enclosure elements of building.
- G. Provide clearance of 1 inch where furring is shown for enclosure or concealment of ducts, plus allowance for insulation thickness, if any.
- H. Install insulated ducts with 1-inch clearance outside of insulation.
- I. Conceal ducts from view in finished and occupied spaces by locating in mechanical shafts, hollow wall construction, or above suspended ceilings. Do not encase horizontal runs in solid partitions, except as specifically shown.
- J. Coordinate layout with suspended ceiling and lighting layouts and similar finished work.
- K. Electrical Equipment Spaces: Route ductwork to avoid passing through transformer vaults and electrical equipment spaces and enclosures.
- L. Non-Fire-Rated Partition Penetrations: Where ducts pass interior partitions and exterior walls, and are exposed to view, conceal space between construction opening and duct or duct insulation with sheet metal flanges of same gauge as duct. Overlap opening on 4 sides by at least 1 1/2 inch.
- M. Fire Barrier Penetrations: Where ducts pass through fire rated walls, partitions, ceilings and floors, maintain the fire rated integrity. Refer to Division 7 for special sealers and materials. Install fire dampers in 2 hour or greater rated walls and where shown on drawings.
- N. Install 3-inch deep water-tight pan at the bottom of all roof exhaust fan duct drops and relief hood duct drops. Pan shall be integral to the ductwork and shall have soldered seams for all duct construction within the 3-inch deep drip pan. The interior of the 3- inch deep pan shall be coated with bitumastic to achieve water-tightness.

3.2 SEAM AND JOINT SEALING

- A. General: Seal all duct seams and joints as follows:
 - 1. All transverse joints, longitudinal seams, and duct penetrations (more stringent than SMACNA).
- B. Seal externally insulated ducts prior to insulation installation.
- C. Delete duct sealing where gasketed round ductwork system or welded ductwork is utilized.

3.3 HANGING AND SUPPORTING

- A. Support horizontal ducts within 2 feet of each elbow and within 4 feet of each branch intersection.
- B. Support vertical ducts at a maximum interval of 16 feet and at each floor.
- C. Attachments to structures shall be as specified in Division 23 Section 230529 "Hangers and Supports".
- D. Install concrete anchors after concrete is placed and completely cured.
- E. Provide vibration isolation and seismic bracing as specified in Division 23 Section "Vibration and Seismic Control for HVAC Piping and Equipment".

3.4 CONNECTIONS

- A. Equipment Connections: Connect equipment with flexible connectors in accordance with Division 23 Section "Duct Accessories."

3.5 CLEANING

- A. Vacuum new ducts systems prior to final acceptance to remove dust and debris.

END OF SECTION

SECTION 233300 - DUCT ACCESSORIES**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. The Contractor shall be held to have read all the Bidding Requirements; Summary of Work; all of the General Conditions and Supplementary General Conditions and all Divisions of the Technical Specifications before submitting a bid proposal for the project, and in the execution of the work, they will be bound by all of the conditions and requirements therein.

1.2 SUBMITTALS

- A. Product Data: For the following:
 - 1. Backdraft dampers.
 - 2. Volume dampers.
 - 3. Turning vanes.
 - 4. Duct-mounting access doors.
 - 5. Flexible connectors.
- B. Shop Drawings: Detail equipment assemblies and indicate dimensions, weight, loads, required clearances, methods of field assembly, components, and location and size of each filed connection.
 - 1. Special fittings.
 - 2. Manual-volume damper installations.
 - 3. Fire-dampers, installations including sleeves and duct-mounting access doors.

1.3 QUALITY ASSURANCE

- A. Comply with NFPA 90A, "Installation of Air Conditioning and Ventilating Systems," and NFPA 90B, "Installation of Warm Air Heating and Air Conditioning Systems."

PART 2 - PRODUCTS**2.1 MANUFACTURERS**

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
 - 1. Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

2.2 SHEET METAL MATERIALS

- A. Comply with SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" for acceptable materials, material thicknesses, and duct construction methods, unless otherwise indicated.
- B. Description: Multiple-blade, parallel action gravity balanced, with center-pivoted blades of

maximum 6-inch width, with sealed edges, assembled in rattle-free manner with 90-degree stop, steel ball bearings, and axles; adjustment device to permit setting for varying differential static pressure.

2.3 VOLUME DAMPERS

- A. General Description: Factory fabricated, with required hardware and accessories. Stiffen damper blades for stability. Include locking device to hold single-blade dampers in a fixed position without vibration. Close duct penetrations for damper components to seal duct consistent with pressure class.
- B. Standard Volume Dampers: Multiple- or single-blade, parallel- or opposed-blade design as indicated, standard leakage rating, with linkage outside airstream, and suitable for horizontal or vertical applications.
- C. Damper Hardware: Zinc-plated, die-cast core with dial and handle made of 3/32-inch-thick zinc-plated steel, and a 3/4-inch hexagon locking nut. Include center hole to suit damper operating-rod size. Include elevated platform for insulated duct mounting.

2.4 TURNING VANES

- A. Fabricate to comply with SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" for vanes and vane runners. Vane runners shall automatically align vanes.
- B. Manufactured Turning Vanes: Fabricate 1-1/2-inch-wide, double-vane, curved blades of galvanized sheet steel set 3/4 inch o.c.; support with bars perpendicular to blades set 2 inches o.c.; and set into vane runners suitable for duct mounting.

2.5 DUCT-MOUNTING ACCESS DOORS

- A. General Description: Fabricate doors airtight and suitable for duct pressure class.
- B. Door: Double wall, duct mounting, and rectangular; fabricated of galvanized sheet metal with insulation fill and thickness as indicated for duct pressure class. Include vision panel where indicated. Include 1-by-1-inch butt or piano hinge and cam latches.
 - 1. Frame: Galvanized sheet steel, with bend-over tabs and foam gaskets.
 - 2. Provide number of hinges and locks as required.

2.6 FLEXIBLE CONNECTORS

- A. General Description: Flame-retardant or noncombustible fabrics, coatings, and adhesives complying with UL 181, Class 1.
- B. Flexible Connector Fabric: Glass fabric double coated with neoprene.
 - 1. Minimum Weight: 26 oz./sq. yd.
 - 2. Tensile Strength: 480 lbf/inch in the warp and 360 lbf/inch in the filling.
 - 3. Service Temperature: Minus40 to plus 200 deg F.

2.7 DUCT ACCESSORY HARDWARE

- A. Instrument Test Holes: Cast iron or cast aluminum to suit duct material, including screw cap and gasket. Size to allow insertion of pitot tube and other testing instruments and of length to suit duct insulation thickness.
- B. Adhesives: High strength, quick setting, neoprene based, waterproof, and resistant to gasoline and grease.

PART 3 - EXECUTION

3.1 APPLICATION AND INSTALLATION

- A. Install duct accessories according to applicable details in SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" for metal ducts.
- B. Provide duct accessories of materials suited to duct materials; use galvanized-steel accessories in galvanized-steel and fibrous-glass ducts, stainless-steel accessories in stainless-steel ducts, and aluminum accessories in aluminum ducts.
- C. Install backdraft dampers on exhaust fans or exhaust ducts nearest to outside and where indicated.
- D. Install volume dampers in ducts with liner; avoid damage to and erosion of duct liner.
- E. Provide balancing dampers at points on supply, return, and exhaust systems where branches lead from larger ducts as required for air balancing. Install at a minimum of two duct widths from branch takeoff.
- F. Provide test holes at fan inlets and outlets and elsewhere as indicated.
- H. Install duct access doors to allow for inspecting, adjusting, and maintaining accessories and terminal units as follows:
 - 1. Adjacent to fire dampers, providing access to reset or reinstall fusible links.
 - 2. On sides of ducts where adequate clearance is available.
- I. Install flexible connectors immediately adjacent to equipment in ducts associated with fans and motorized equipment supported by vibration isolators.
- J. Connect diffusers or light troffer boots to low pressure ducts with maximum 60-inch lengths of flexible duct clamped or strapped in place.
- K. Install duct test holes where indicated and required for testing and balancing purposes.

3.3 ADJUSTING

- A. Adjust duct accessories for proper settings.
- B. Final positioning of manual-volume dampers is specified in Division 23 Section "Testing, Adjusting, and Balancing."

END OF SECTION

SECTION 233713 - AIR TERMINALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 01 Specification sections, apply to work of this section.

1.2 SUMMARY

- A. Extent of air outlets and inlets work is indicated by drawings and schedules, and by requirements of this section.
- B. Types of air outlets and inlets required for project include the following:
 - 1. Supply air registers and grilles.
 - 2. Return, transfer and exhaust air registers.
- C. Related Sections: The following sections contain requirements that relate to this Section:
 - 1. Other Division 23 sections for ductwork and duct accessories required in conjunction with air outlets and inlets; not work of this section.
 - 2. Other Division 23 sections for balancing of air outlets and inlets; not work of this section.

1.3 SUBMITTALS

- A. Refer to Section 230010 "Basic Mechanical Requirements".

1.4 QUALITY ASSURANCE

- A. Codes and Standards:
 - 1. ARI Compliance: Test and rate air outlets and inlets in accordance with ARI 890 "Rating of Air Diffusers and Air Diffuser Assemblies."
 - 2. ASHRAE Compliance: Test and rate air outlets and inlets in accordance with ASHRAE Standard 70 "Method of Testing for Rating the Air Flow Performance of Outlets and Inlets."
 - 3. NFPA Compliance: Install air outlets and inlets in accordance with NFPA 90A "Standard for the Installation of Air Conditioning and Ventilating Systems."

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Refer to Section 230010 "Basic Mechanical Requirements".
- B. Deliver air outlets and inlets wrapped in factory-fabricated fiber-board type containers. Identify on outside of container type of outlet or inlet and location to be installed. Avoid crushing or bending and prevent dirt and debris from entering and settling in devices.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Unless otherwise indicated, subject to compliance with requirements, provide products by one of the following:
 - 1. Diffuser, Grilles, Registers
 - a. Price.
 - b. Anemostat Products Div.; Dynamics Corp. of America.
 - c. Titus Products Div.; Philips Industries, Inc.
 - d. Carnes.
 - e. Hart & Cooley.

2.2 AIR DEVICES

- A. General: Except as otherwise indicated, provide manufacturer's standard air devices where shown; of size, shape, capacity and type indicated; constructed of materials and components as indicated, and as required for complete installation.
- B. Performance: Provide air supply devices that have, as minimum, temperature and velocity traverses, throw and drop, pressure drop and noise criteria ratings for each size device as listed in manufacturer's current data. Provide air return devices that have, as a minimum, pressure drop and noise criteria ratings for each size device as listed in manufacturer's current data.
- C. Ceiling Compatibility: Provide air devices with border styles that are compatible with adjacent ceiling systems, and that are specifically manufactured to fit into ceiling module with accurate fit and adequate support. Provide drop face type air devices where drop face ceiling tile is indicated. Refer to general construction drawings and specifications for types of ceiling systems which will contain each type of ceiling air devices.
- D. Wall Compatibility: Provide air devices with border styles that are compatible with adjacent wall systems, and that are specifically manufactured to fit into wall construction with accurate fit and adequate support. Refer to general construction drawings and specifications for type of wall air device.
- E. Refer to schedule on drawing for all devices.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine areas and conditions under which air outlets and inlets are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF DIFFUSERS, REGISTERS, AND GRILLES

- A. General: Install air outlets and inlets in accordance with manufacturer's written instructions and in accordance with recognized industry practices to insure that products serve intended functions.
- B. Coordinate with other work, including ductwork and duct accessories, as necessary to interface installation of air outlets and inlets with other work.
- C. Locate ceiling air diffusers, registers, and grilles, as indicated on general construction "Reflected Ceiling Plans". Unless otherwise indicated, locate units in center of acoustical ceiling modules.
- D. Securely fasten with edge gaskets all surface mounted flange type diffusers, registers and grilles to ductwork or ceilings. Draw air devices tight to finished surface to prevent leakage and smudging.
- E. Carefully align, mate and snugly fit butted lengths of linear diffusers.

END OF SECTION

SECTION 238126 - SPLIT-SYSTEM HEAT PUMPS

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 split-system air-conditioning and heat-pump units consisting of separate evaporator-fan and compressor-condenser components.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include rated capacities, operating characteristics, and furnished specialties and accessories. Include performance data in terms of capacities, outlet velocities, static pressures, sound power characteristics, motor requirements, and electrical characteristics.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
 - 1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 - 2. Wiring Diagrams: For power, signal, and control wiring.
- C. Samples for Initial Selection: For units with factory-applied color finishes.

1.4 INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.
- B. Warranty: Sample of special warranty.
- C. Operation and Maintenance Data: For split-system air-conditioning units to include in emergency, operation, and maintenance manuals.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Filters: One set for each indoor unit.

1.6 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. ASHRAE Compliance:
 - 1. Fabricate and label refrigeration system to comply with ASHRAE 15, "Safety Standard for Refrigeration Systems."

1.7 COORDINATION

- A. Coordinate sizes and locations of concrete bases with actual equipment provided. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork are specified in Section 033000 "Cast-in-Place Concrete."

1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of split-system air-conditioning units that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period:
 - 2. For Compressor: Five years from date of Substantial Completion.
 - 3. For Parts: One year from date of Substantial Completion.
 - 4. For Labor: One year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - 1. Daikin (Basis of Design)
 - 2. Samsung.
 - 3. Mitsubishi.

2.1 INDOOR UNITS – DUCTED TYPE, CONCEALED

- A. General
 - 1. The Ducted type indoor unit shall be factory assembled, wired and tested. Contained within the unit shall be all factory wiring and internal piping, control circuit board and fan motor. The unit, in conjunction with the wired, wall mounted controller, shall have a self-diagnostic function, 3-minute time delay mechanism, an auto restart function, and a test run switch. Indoor unit and refrigerant pipes shall be purged with dry nitrogen before shipment from the factory.
- B. Unit Cabinet
 - 1. The cabinet shall be space saving, low profile, horizontal, ducted type. Formed cabinet shall be

constructed of G-60 galvanized steel with factory applied foam surface insulation to prevent condensation on outer surfaces. The cabinet shall be provided with four mounting brackets to accommodate suspension from threaded rod or structural support located on the side panels in all four corners. Brackets shall be suitable for supporting the weight of the indoor unit. The indoor unit cabinet shall be equipped with a ducted air outlet and ducted rear return air connection. PEA units shall support an optional Bottom Return Adaptor. PEAD units shall have selectable rear or bottom return as a standard feature. The PEAD units shall be equipped with a 3-15/16" (100mm) diameter ventilation air intake knock-out.

C. Fan

1. The indoor unit fan unit shall be an assembly with four (4) Sirocco fans direct driven by a single motor. Fan shall develop airflow to deliver up to 0.60 inches wg of external static pressure. The indoor fans shall be statically and dynamically balanced to run on a motor with permanently lubricated bearings. The indoor fans shall operate on any of three (3) speeds, High, Mid, Low and Auto. The fan shall have a selectable Auto fan setting that will adjust the fan speed based on the difference between controller set-point and space temperature.

D. Filter

1. Refer to floor plans for filter return grilles specification.

E. Coil

1. The indoor coil shall be of nonferrous construction with smooth plate fins on copper tubing. The tubing shall have inner grooves for high efficiency heat exchange. All tube joints shall be brazed with PhosCopper or silver alloy. The coils shall be pressure tested at the factory. A condensate pan and with two (2) 1-9/32" (32mm) drains shall be provided under the coil. In addition to the two (2) gravity drains, the indoor unit shall be provided with an integral condensate lift mechanism able to raise drain water [PEA = 21-21/32"(550mm), PEAD = 27-9/16" (700mm) inches above the condensate pan. Lift mechanism shall incorporate a safety sensor system to shut down the indoor fan and the compressor in the outdoor unit in the event of high level of condensate in the drain pan. An optional drain pan level switch (DPLS1), designed to connect to the control board, shall be provided if required, and installed on the condensate pan to prevent condensate from overflowing.

2.2 INDOOR UNITS – WALL-MOUNTED

A. Wall-mounted, Fan Components:

1. Cabinet: Enamel Steel with removable panels on front and/or ends. Color selected by Architect.
2. Refrigerant Coil: Copper tube, with mechanically bonded aluminum fins and thermal-expansion valve. Comply with ARI 210/240.
3. Electric Coil: Helical, nickel-chrome, resistance-wire heating elements; with refractory ceramic support bushings, automatic-reset thermal cutout, built-in magnetic contactors, manual-reset thermal cutout, airflow proving device, and one-time fuses in terminal box for overcurrent protection.
4. Fan: Direct drive, centrifugal.
5. Fan Motors:

- a. Comply with NEMA designation, temperature rating, service factor, enclosure type, and efficiency requirements specified in Section 23 05 13 "Common Motor Requirements for HVAC Equipment."
 - b. Multi-tapped, multispeed with internal thermal protection and permanent lubrication.
 - c. Wiring Terminations: Connect motor to chassis wiring with plug connection.
6. Filters: Permanent, cleanable.
7. Condensate Drain Pans:
- a. Fabricated with one percent slope in at least two planes to collect condensate from cooling coils (including coil piping connections, coil headers, and return bends) and humidifiers, and to direct water toward drain connection.
 - 1) Length: Extend drain pan downstream from leaving face.
 - 2) Depth: A minimum of 1 inch deep.
 - b. Single-wall, galvanized-steel sheet.
 - c. Drain Connection: Located at lowest point of pan and sized to prevent overflow. Terminate with threaded nipple on one end of pan.
 - 1) Minimum Connection Size: NPS 3/4.
 - d. Pan-Top Surface Coating: Asphaltic waterproofing compound.
 - e. Units with stacked coils shall have an intermediate drain pan to collect condensate from top coil.

2.2 INDOOR UNIT – CEILING RECESSED CASSETTE TYPE

A. General

1. The indoor unit shall be a space-saving ceiling-recessed cassette type, factory assembled, wired and tested. Contained within the unit shall be all factory wiring and internal piping, drain left mechanism, control circuit board, fan, and fan motor. The unit, in conjunction with the wireless or wired remote controller, shall have a self-diagnostic function, 3-minute time delay mechanism, an auto restart function, and a test run switch. Indoor unit and refrigerant pipes shall be purged with dry nitrogen before shipment from the factory.

B. Unit Cabinet:

1. The cabinet shall be formed from galvanized sheet metal coated with high-density foam insulation. Cabinet shall be for recessed mounting and provided with four (4) corner mounting supports behind removable corner pockets in Grille assembly allowing adjustment of mounting height from front of unit.

C. The cabinet panel shall have provisions for a field installed filtered outside air intake.

D. There shall be a knock-out to provide a branch air duct for conditioning a secondary space.

E. There shall be an optional multi-function casement which will mount between the unit cabinet and the Grille assembly to provide a second field installed filtered outside air intake and provide a mount for a high-efficiency filter element.

F. A separate grill assembly shall be attached to the front of the cabinet to provide supply air vanes in four directions and a center mounted return air section. The four-way grill shall be fixed to bottom of cabinet allowing two, three or four-way blow. The grill vane angles shall be individually adjustable from the wired remote controller to customize the airflow pattern for the conditioned space. Grill assembly color shall be white, Munsell number 6.4Y 8.9/0.4.

G. Fan:

1. The indoor fan shall be an assembly with a turbo fan propeller, direct driven by a single motor and shall be statically and dynamically balanced to run on a motor with permanently lubricated bearings. The indoor fan shall consist of four (4) speed settings, Low, Mid1, Mid2, High and Auto. The fan shall have a selectable Auto fan setting that will adjust the fan speed based on the difference between controller set-point and space temperature.

H. Vane:

1. The indoor unit shall have an adjustable air outlet system offering 4-way airflow, 3-way airflow, or 2-way airflow with switches that can be set to provide optimum airflow based on ceiling height and number of outlets used. The indoor unit vanes shall have 5 fixed positions and a swing feature that shall be capable of automatically swinging the vanes up and down for uniform air distribution. The vanes shall have an Auto-Wave selectable option in the heating mode that shall randomly cycle the vanes up and down to evenly heat the space. If specified, the grill shall have an optional i-see® sensor kit installed – sensor function described in System Control Section.

I. Filter

1. Return air shall be filtered by means of an easily removable, long life, washable filter.

J. Coil:

1. The indoor unit coil shall be of nonferrous construction with pre-coated aluminum strake fins on copper tubing. The tubing shall have inner grooves for high efficiency heat exchange.

K. The heat exchanger shall have a modified fin shape that reduces air resistance for a smoother, quieter airflow. All tube joints shall be brazed with PhosCopper or silver alloy. The coils shall be pressure tested at the factory.

L. A condensate pan with drain connections shall be provided under the coil. The unit shall also include a built-in, automatic condensate lift mechanism that will be able to raise drain water 33 inches (84 cm) above the condensate pan. The lift mechanism shall be equipped with a positive acting liquid level sensor to shut down the indoor unit if liquid level in the drain pan reached maximum level.

M. Both refrigerant lines between the indoor unit and outdoor unit shall be fully insulated.

N. Electrical

1. The electrical power of the unit shall be 208/230 volts, 1-phase, 60 hertz. The system shall be capable of satisfactory operation within voltage limits of 187 volts to 253 volts.
2. The indoor unit shall be provided with A-Control – a system allowing the indoor unit to be powered and controlled directly from the outdoor unit using a fourteen (14) gauge (AWG) 3-wire connection plus ground wire providing both primary power and integrated, bi-directional, digital control signal without additional connections.
3. The indoor units shall not have any supplemental or “back-up” electrical heating elements.

2.3 OUTDOOR UNITS

A. Air-Cooled, Compressor-Condenser Components:

1. Casing: Steel, finished with baked enamel in color selected by Architect, with removable panels for access to controls, weep holes for water drainage, and mounting holes in base. Provide brass service valves, fittings, and gage ports on exterior of casing.
2. Compressor: Hermetically sealed with crankcase heater and mounted on vibration isolation device. Compressor motor shall have thermal- and current-sensitive overload devices, start capacitor, relay, and contactor.
 - a. Compressor Type: Scroll.

- b. Refrigerant Charge: R-410A.
 - c. Refrigerant Coil: Copper tube, with mechanically bonded aluminum fins and liquid subcooler. Comply with ARI 210/240.
- 3. Heat-Pump Components: Reversing valve and low-temperature-air cutoff thermostat.
 - 4. Fan: Aluminum-propeller type, directly connected to motor.
 - 5. Motor: Permanently lubricated, with integral thermal-overload protection.
 - 6. Mounting Base: Refer to the floor plans.

2.4 ACCESSORIES

- A. Thermostat: Low voltage with subbase to control compressor and evaporator fan.
- B. Automatic-reset timer to prevent rapid cycling of compressor.
- C. Refrigerant Line Kits: Soft-annealed copper suction and liquid lines factory cleaned, dried, pressurized, and sealed; factory-insulated suction line with flared fittings at both ends.
- D. Drain Hose: For condensate.
- E. Factory wired condensate lift pump. Raise drain water min. 33”.

2.5 CAPACITIES AND CHARACTERISTICS

- A. See Schedules on Drawings:

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install units level and plumb.
- B. Install evaporator-fan components using manufacturer's standard mounting devices securely fastened to building structure.
- C. Install ground-mounted, compressor-condenser components on 4-inch-thick, reinforced concrete base that is 6inches larger, on each side, than unit. Coordinate anchor installation with concrete base.
- D. Install and connect pre-charged refrigerant tubing to component's quick-connect fittings. Install tubing to allow access to unit.

3.2 CONNECTIONS

- A. Piping installation requirements are specified in other Sections. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Where piping is installed adjacent to unit, allow space for service and maintenance of unit.
- C. Duct Connections: Duct installation requirements are specified in Section 233113 "Metal Ducts." Drawings indicate the general arrangement of ducts. Connect supply and return ducts to split-

system air-conditioning units with flexible duct connectors. Flexible duct connectors are specified in Section 233300 "Air Duct Accessories."

3.3 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.
- B. Perform tests and inspections.
 - 1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.
- C. Tests and Inspections:
 - 1. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
 - 2. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
 - 3. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Remove and replace malfunctioning units and retest as specified above.
- E. Prepare test and inspection reports.

3.4 STARTUP SERVICE

- A. Perform startup service.
 - 1. Complete installation and startup checks according to manufacturer's written instructions.

3.5 DEMONSTRATION

- A. Train Owner's maintenance personnel to adjust, operate, and maintain units.

END OF SECTION 238126