AGREEMENT

CONSTRUCTION AGREEMENT

This Agreement, made and entered into by and between Pinellas County, a political subdivision of the State of Florida, hereinafter designated the County, and

Air Mechanical & Service Corp.

(Corporation, Partnership or Individual Proprietor)

Authorized to do business in the State of Florida, with place of business located at

4311 W. Ida Street, Tampa, FL 33614

herein after designated the Contractor,

WITNESSETH:

That for and in consideration of the sum not to exceed **four hundred fifty four thousand eight hundred sixty US dollars and zero cents($454,860.00)** to be paid by the County to the CONTRACTOR as herein provided, and in further consideration of the mutual covenants and promises to be kept and performed by and between the parties hereto, it is agreed as follows:

1. **THE CONTRACTOR AGREES:**

   A. To furnish all services, labor, materials and equipment necessary for the complete performance, in a thorough and workmanlike manner, of the Work contemplated under Bid Title: **STAR Center AHU -104, -161, -162 Replacement,** Bid No: **26-0306-ITB-C**, in Pinellas County, Florida, to comply with the applicable standards, and to perform all Work in strict accordance with the terms of the Contract Documents.

   B. To commence Work under this Agreement with an adequate force and equipment within 15 consecutive calendar days after receipt of written notice from the County to proceed hereunder, and to fully complete all necessary Work under the same within not more than **(365)** consecutive calendar days. It is understood and agreed that the date on which the consecutive calendar days will begin to be charged to the Project shall be the fifteenth (15th) calendar day from the date of receipt of the Notice to Proceed. Time of performance and completion of the Work of this Agreement is of the essence.

   C. That upon failure to complete all Work within the time provided for above, the Contractor shall pay to the County such sums as shall be determined in accordance with the Liquidated Damages provision of this Agreement, and the payment of such sum shall be secured as provided for therein.

   D. That the Contractor and each subcontractor shall furnish to the County, upon demand, a certified copy of the payroll covering Work under this Agreement, together with such other information as may be required by the County to ensure compliance with the law and the provisions of this Agreement.

   E. To procure all insurance as required by the Instructions to Bidders.

   F. To procure and maintain all permits and licenses which may be required by law in connection with the prosecution of the Work contemplated hereunder, except for those permits obtained by the County as expressly set forth in Appendix 1 of the Contract Documents. Notwithstanding the provisions above, the Contractor shall be responsible for non-compliance of all permit requirements, including all fines resulting from Contractor's non-compliance of said requirements.

   G. To permit any representative(s) of the County, at all reasonable times, to inspect the Work in progress or any of the materials used or to be used in connection therewith, whether such Work is located on or off the Project site, and to furnish promptly, without additional charge, all reasonable facilities, labor and materials deemed necessary by the County's Design Professional/Engineer/Project Manager, for the conducting of such inspections and tests as it may require.

   H. Unless otherwise provided in the special provisions, special conditions and Specifications, to assume liability for all damage to Work under construction or completed, whether from fire, water, winds, vandalism, or other causes,

AGREEMENT

until final completion and acceptance by the County and notwithstanding the fact that partial payments may have been made during construction.

I. No subcontract or transfer of Agreement shall in any case release either the Contractor or its surety of any liability under the Agreement and bonds. The County reserves the right to reject any subcontractors or equipment.

J. Unless specifically prohibited by Florida law, the Contractor shall defend, indemnify and hold harmless the County and its officers and employees from any and all liabilities, claims, damages, penalties, demands, judgments, actions, proceedings, losses or costs, including, but not limited to, reasonable attorneys' fees and paralegals' fees, or by, or on account of, any claim or amounts recovered under the "Workers' Compensation Law" or of any other laws, by-laws, ordinance, order or decree whether resulting from any claimed breach of this Agreement by the Contractor or from personal injury, property damage, direct or consequential damages, or economic loss, to the extent caused by the negligence, recklessness, or intentional wrongful misconduct of the Contractor or anyone employed or utilized by the Contractor in the performance of this Agreement. The duty to defend under this paragraph is independent and separate from the duty to indemnify, and the duty to defend exists regardless of any ultimate liability of the Contractor, the County and any indemnified party. The duty to defend arises immediately upon presentation of a claim by any party and written notice of such claim being provided to the Contractor. The Contractor's obligation to indemnify and defend under this Article will survive the expiration or earlier termination of this Agreement until it is determined by final judgment that an action against the County or an indemnified party for the matter indemnified hereunder is fully and finally barred by the applicable statute of limitations. The Contractor shall guarantee the payment of all just claims for materials, supplies, tools, labor or other just claims against it or any subcontractor in connection with this Agreement; and its bonds will not be released by final acceptance and payment by the County unless all such claims are paid or released.

K. By signing this Agreement, the contractor certifies under penalty of law that it understands the terms and conditions of, and will comply with, the Pinellas County National Pollutant Discharge Elimination System (NPDES) Permit No. FLS000005 that authorizes the storm water discharge associated with construction activities.

L. Contractor shall submit invoices for payment due as provided herein with such documentation as required by Pinellas County and all payments shall be made in accordance with the requirements of Section 218.70 et. seq, Florida Statutes, "The Local Government Prompt Payment Act." Invoices shall be submitted to the address below unless instructed otherwise on the purchase order, or if no purchase order, by the ordering department:

Finance Division Accounts Payable

Pinellas County Board of County Commissioners

P. O. Box 2438

Clearwater, FL 33757

Each invoice shall include, at a minimum, the Contractor's name, contact information and the standard purchase order number. In order to expedite payment, it is recommended the Contractor also include the information shown in Section A – General Conditions Payments/Invoices. The County may dispute any payments invoiced by Contractor in accordance with the County's Dispute Resolution Process for Invoiced Payments, established in accordance with Section 218.76, Florida Statutes, and any such disputes shall be resolved in accordance with the County's Dispute Resolution Process.

M. Local, State, and Federal Compliance Requirements: The laws of the State of Florida apply to any purchase made under this Invitation to Bid. Bidders shall comply with all local, state, and federal directives, orders and laws as applicable to this bid and subsequent contract(s) including but not limited to Americans with Disabilities Act (ADA), Section 504 of the Rehabilitation Act of 1973, Equal Employment Opportunity (EEO), Minority Business Enterprise (MBE), and OSHA as applicable to this contract.

N. The Contractor and Subcontractor must register with and use the E-verify system in accordance with Florida Statute 448.095. The County will verify the work authorization of the Contractor and Subcontractor. A Contractor and Subcontractor may not enter into a contract with the County unless each party registers with and uses the E-verify system.

If a Contractor enters a contract with a Subcontractor, the Subcontractor must provide the Contractor with an affidavit stating that the Subcontractor does not employ, contract with, or subcontract with unauthorized aliens. The Contractor must maintain a copy of the affidavit for the duration of the contract.

AGREEMENT

If the County, Contractor, or Subcontract has a good faith belief that a person or entity with which it is contracting has knowingly violated Florida Statute 448.09(1) shall immediately terminate the contract with the person or entity.

If the County has a good faith belief that a Subcontractor knowingly violated this provision, but the Contractor otherwise complied with this provision, the County will notify the Contractor and order that the Contractor immediately terminate the contract with the Subcontractor.

A contract terminated under the provisions of this section is not a breach of contract and may not considered such. Any contract termination under the provisions of this section may be challenged to Section 448.095(2)(d), Florida Statute. Contractor acknowledges upon termination of this agreement by the County for violation of this section by Contractor, Contractor may not be awarded a public contract for at least 1 year. Contractor acknowledges that Contractor is liable for any additional costs incurred by the County as a result of termination of any contract for a violation of this section.

Contractor or Subcontractor shall insert in any subcontracts the clauses set forth in this section, requiring the subcontracts to include these clauses in any lower tier subcontracts. Contractor shall be responsible for compliance by any Subcontractor or Lower Tier Subcontractor with the clause set for in this section.

O. Supplier acknowledges and warrants that all digital content and services provided under this contract conforms and shall continue to conform during the Term of this Agreement to the W3C Web Content Accessibility Guidelines, version 2.0 ("WCAG 2.0") at conformance Level A and AA. If all digital content and services does not fully conform to WCAG 2.0 A and AA, Supplier shall advise Pinellas County in writing of the nonconformance prior to execution of this Agreement and shall provide Pinellas County a plan to achieve conformance to WCAG 2.0 A and AA, including but not limited to, an intended timeline for conformance. Failure to achieve conformance, as determined in Pinellas County's sole discretion, on its intended timeline shall be considered a material breach of this Agreement and grounds for termination by Pinellas County.

If during the Term of this Agreement, Supplier fails to maintain compliance with WCAG 2.0 A and AA or Pinellas County otherwise identifies an issue related to accessibility of the product (the "Accessibility Issue") that renders the product inaccessible, then Pinellas County shall notify Supplier of non-compliance. Within 30 days of Supplier's receipt of a non-compliance notice ("Notice"), Supplier and Pinellas County shall meet and mutually agree upon an appropriate timeline for resolution of the Accessibility Issue(s) ("Initial Meeting").

Should Contractor :

i. fail to acknowledge receipt of the notice within 30 days of receipt of the Notice.
ii. unreasonably and solely withhold agreement regarding a timeline for resolution for more than 30 days following the Initial Meeting: or
iii. fail to materially resolve the Accessibility Issue(s) within the agreed-upon timeline,

it will be considered a failure to comply with the requirements of this section, will constitute a material breach of this Agreement, and will be grounds for termination of this Agreement by the County.

2. THE COUNTY AGREES:

A. To pay to the Contractor the Agreement Amount herein above specified, as follows:

If progress satisfactory to the County is being made by the Contractor the Contractor will receive partial payments on this Agreement as the Work progresses, based upon estimates of the amount of Work done less payments previously made. In each case 5% of the Agreement Amount earned shall be deducted until satisfactory completion and final acceptance of the Project, and final compliance by the Contractor with all terms and conditions of the Contract Documents. Neither progress payment nor partial or entire use or occupancy of the Project by the County shall constitute an acceptance of Work not in accordance with the Contract Documents. The County, prior to making of any payment, may require the Contractor to furnish a certificate or other evidence showing the amount of Work done or completed at that time.

B. If the Contractor shall so request, to furnish, without charge, 2 certified copies of any motions or resolutions authorizing the execution of this Agreement, or amendments thereto, or any changes in the Plans, Plans or Specifications pertaining to this Agreement.

AGREEMENT

3. IT IS MUTUALLY AGREED:

A. That no change, alteration, amendment, payment for extra Work or agreement to pay for same, shall be binding upon the County until it has been approved the same, and until the same shall be properly approved by the Board.

B. A price quote for a Change Order will not be considered valid and will be rejected unless it is received in response to a written County request, and the County will not make any such request until the County and the Contractor have first established agreement about the contents and administrative requirements of the proposed Change Order, which will include at a minimum details about the proposed modifications to the scope of work, available budget and appropriations applicable to the change, and all other requirements established by the County for proceeding with the Change Order.

C. The County shall designate a representative insofar as prosecution of the Work, and interpretation of the Plans and Specifications are concerned, and that no payments shall be made by the County under this Agreement except upon the certificate of the proper County designee.

D. This Agreement shall be interpreted under and its performance governed by the laws of the State of Florida.

E. The failure of the County to enforce at any time or for any period of time any one or more of the provisions of the Contract Documents shall not be construed to be and shall not be a waiver of any such provision or provisions or of its rights thereafter to enforce each and every such provision.

F. Each of the parties hereto agrees and represents that this Agreement comprises the full and entire agreement between the parties affecting the Work contemplated, and that no other agreement or understanding of any nature concerning the same has been entered into or will be recognized, and that all negotiations, acts, Work performed, or payments made prior to execution hereof shall be deemed merged into, integrated and superseded by this Agreement.

G. Should any provision of this Agreement be determined by a court to be unenforceable, such determination shall not affect the validity or enforceability of any section or part thereof.

H. In the event sufficient budgeted funds are not available for a new fiscal period, the County shall notify the Contractor of such occurrence and Agreement shall terminate on the last day of current fiscal period without penalty or expense to the County.

4. CONTRACT DOCUMENTS

The documents comprising this Agreement, which shall be known as the "Contract Documents", include the entirety of County's ITB pursuant to which this Agreement is awarded, including any addenda, and Contractor's submittal thereto. The following portions of the Contract Documents are listed for the purposes of determining priority:

CHANGE ORDERS
AGREEMENT
ADDENDA (if applicable)
APPENDIX 4 SPECIAL NOTICES (if applicable)
SPECIFICATIONS
SPECIAL CONDITIONS
SCOPE OF WORK
PLANS

If there is a conflict between the terms of the Contract Documents, then the conflict shall be resolved according to the following order of priority: any terms required as a condition of grant funds shall have first priority; then the terms of this Agreement; then the terms of the above listed documents shall be given preference in their above listed order; and then the terms of any remaining documents.

AGREEMENT

5. **PUBLIC RECORDS – CONTRACTOR'S DUTY**

If the contractor has questions regarding the application of Chapter 119, Florida Statutes, to the contractor's duty to provide public records relating to this agreement, the contractor shall contact:

Pinellas County Board of County Commissioners

Purchasing and Risk Management Division

400 S. Ft. Harrison Ave, 6th Floor,

Clearwater, FL 33756

Public Records Liaison

Phone: 727-453-3218

Email: mcchartier@pinellascounty.org

6. **BINDING AGREEMENT**

This Agreement shall be binding upon, and shall inure to the benefit of the executors, administrators, heirs, successors and assigns of the Contractor.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed on the day and year as written.

Pinellas County Florida, a political subdivision of the State of Florida

By: _____
Signature

Name: _____
Typed, printed or stamped

Tittle: ----------

Date: _____

CONTRACTOR

By: _____
Signature

Print Name: Andy Citek

Title: VP/Branch Manager

CMC1250253
Contractor's Registration or Certification No. issued by the State of Florida

APPROVED AS TO FORM
By: *Miles Belknap*
Office of the County Attorney

The foregoing instrument was acknowledged before me by means of X physical presence ~~or online notarization~~ this 8th day of April, 2026 by Andy Citek as Vice President/ Branch Manager for Air Mechanical & Service Corp.

Julie A. Ris
Notary Public-State of Florida

Julie A. Ris
Name of Notary Public

(NOTARY SEAL)

Personally Known X OR Produced Identification _____
Type of Identification Produced

YOUNG-RAINEY STAR CENTER

AHU 104, 161, 162 REPLACEMENT

Pinellas County Project PID# 4566A

Brady & Anglin Project #25017

100% CONSTRUCTION DOCUMENTS

December 19, 2025

Brady & Anglin
Consulting Engineers
of Florida, Inc.
Business No. 4794
2713 N. Falkenburg Road. Suite 'B' Tampa, Florida 33619
Phone (813) 621-2000

TABLE OF CONTENTS

DIVISION 16 – ELECTRICAL SYSTEMS

SECTION 01100 - SUMMARY OF WORK

PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Contract Description: See contract documents for Scope of Work.

B. Contractor use of site and premises.

C. Work Sequence.

D. Owner occupancy.

1.2 WORK BY CONTRACTOR

A. The scope of work listed on drawings and in the project specifications.

1.3 CONTRACTOR USE OF SITE AND PREMISES

A. General: The Contractor shall have limited use of the premises for construction operations throughout the course of the work until Substantial Completion. The Contractor's use of the premises is limited by the Owner's and Tenant's right to continue operations. Confine operations to areas within construction area. Portions of the site beyond the construction area are not to be disturbed.

B. The Contractor shall submit to and comply with all access and security requirements of the Star Center and Raytheon Company. Contractors and sub-contractors who are to work inside the Raytheon areas must be a U.S citizen. All will need to submit a driver's license and an original certified birth certificate or a passport (current or expired) shortly after the notice to proceed has been issued. Persons who fail to gain escort clearance will not be allowed inside the building and it is the contractor's responsibility to ensure they have personnel who are escort clearance capable to be allowed into the building BEFORE the project commencement. All personnel applying for a non-escort badge or visitor's badge shall provide their full legal names to the STAR Center project manager for submission prior to the start of the project. There are no exceptions.

C. A maximum of (3) three non-escort badges shall be allowed for the Prime Contractor. Each Subcontractor shall be allowed a maximum of (2) two non-escort badges. All other technicians shall apply for daily visitor's badges when entering Raytheon.

D. The Contractor shall maintain full care and control of the portion of the site where construction operations are occurring. However, the building

will remain occupied and normal operations will continue therein.

E. All areas disturbed by construction operations shall be returned to their original condition prior to Substantial Completion.

F. Any work that will cause interruptions to STAR Center tenants, whether the work is inside the tenant space or outside of the tenant space, especially welding, must be completed after hours or on weekends and coordinated with the STAR Center and the tenants.

G. Emergency Building Exits During Construction: Shall be accessible at all times.

H. Construction Operations: Scheduled by Contractor and approved by STAR center project manager.

I. Time Restrictions for Performing Interior and Exterior Work: Scheduled by Owner.

1.4 WORK SEQUENCE

A. The contractor shall obtain all necessary permits, authorizations, code inspections and site inspections required by local and/or regional authorities on a timely basis so as not to delay the project.

B. Construct Work in phases to accommodate Owner's occupancy during the construction period, coordinate construction schedule and operations with Owner.

1.5 OWNER OCCUPANCY

A. The Owner intends to occupy portions of the premises during construction. Schedule work with Owner.

B. Cooperate with Owner to minimize conflict, and to facilitate Owner's operations.

C. Schedule the Work to accommodate this requirement.

PART 2 - PRODUCTS

A. Not Used

PART 3 - EXECUTION

A. Not Used

SECTION END

SECTION 01200 - PROJECT COORDINATION PART

1 - GENERAL

1.1 SECTION INCLUDES

A. Project coordination by the County Project Manager.

B. Construction mobilization.

C. Schedules.

D. Submittals.

E. Coordination drawings.

F. Closeout procedures.

1.2 RELATED SECTIONS

A. Section Contract Closeout: Contract Closeout Procedures.

1.3 PROJECT COORDINATOR

A. Project Coordinator: Brad Grabo, PE, Facility Engineer.

1.4 CONSTRUCTION MOBILIZATION

A. Cooperate with the Project Coordinator in allocation of mobilization areas of site; for field offices and sheds, for access, traffic, and parking facilities.

B. During construction, coordinate use of site and facilities through the Project Coordinator.

C. Comply with Project Coordinator's procedures for intra-project communications; submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.

D. Comply with instructions of the Project Coordinator for use of temporary utilities and construction facilities.

E. Coordinate field engineering and layout work under instructions of the Project Coordinator.

1.5 SCHEDULES

A. The Contractor shall prepare and submit a Microsoft project management schedule file. Approval of the schedule by the Engineer and Owner shall not relieve the Prime Contractor of responsibility for scheduling the work and maintaining progress as specified in the Contract Documents.

1. Schedule shall show critical submittal dates related to each activity or prepare separate coordinated listing of critical submittal dates. Show phases of work within each activity for major elements which involve purchase lead-time, fabrication, or other coordination issues, as well as installation. In addition to a critical path for each of the work segments, an overall critical path relating these segments to the overall project completion time shall be indicated.

1.6 PERSONNEL

A. Prior to Notice to Proceed, Contractor shall submit a list of staff assignments, including the Superintendent and Project Manager. List business contact telephone numbers. Identify the Contractor's point of contact for all communication regarding the project.

B. Comply with the Star Center and Raytheon Company requirements for security and access into the building and onto the roof prior to the start of the project.

1.7 LIST OF SUBCONTRACTORS

A. At the pre-construction meeting the Contractor shall submit to the Owner a list of all subcontractors for the project.

B. Note: When any work is being completed on the project by sub-contractors the Prime Contractor shall have the project leader or one of the other technicians with a non-escort badge be onsite during completion of the work.

1.8 SUBMITTALS

A. Submit preliminary shop drawings, product data and samples in accordance with Section Submittals for review and compliance with Contract Documents, for field dimensions and clearances, for relation to available space, and for relation to work of separate contracts. Revise and resubmit as required.

B. Submit applications for payment on forms requested by Owner for review, and for transmittal to Owner.

C. Submit requests for interpretation of Contract Documents, and obtain instructions through the Design Professional and Owner.

D. Process requests for substitutions, and change orders, through the Design Professional and Owner.

E. Deliver closeout submittals for review and preliminary inspection reports, for transmittal to Design Professional and Owner.

1.9 **COORDINATION DRAWINGS**

A. Provide information required by Design Professional for preparation of coordination drawings.

B. Review drawings prior to submission to Owner.

1.10 **CLOSEOUT PROCEDURES**

A. Notify Design Professional when Work is considered ready for Substantial Completion. Accompany Project Coordinator on preliminary inspection to determine items to be listed for completion or correction in Contractor's Notice of Substantial Completion.

B. Comply with Project Coordinator's instructions to correct items of work listed in executed Certificates of Substantial Completion and for access to Owner occupied areas.

C. Notify Project Coordinator when Work is considered finally complete. Accompany Project Coordinator on preliminary final inspection.

D. Comply with Project Coordinator's instructions for completion of items of Work determined by Owner's final inspection.

PART 2 - PRODUCTS

A. Not Used

PART 3 - EXECUTION

A. Not Used

SECTION END

SECTION 01300- SUBMITTALS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Submittal procedures.

B. Construction progress schedules.

C. Proposed Products list.

D. Shop Drawings.

E. Product Data.

F. Samples.

G. Manufacturer's instructions.

H. Manufacturers' certificates.

I. Construction photographs.

1.2 RELATED SECTIONS

A. Section Contract Closeout: Contract warranty and manufacturers' certificates closeout submittals.

1.3 SUBMITTAL PROCEDURES

A. **All submittals shall be submitted at the same time as one package with the exception of long lead items such as AHUs, curb adapters, etc.**

B. Transmit each submittal with Design Professional’s submittal form.

C. Sequentially number the transmittal form. Resubmittals to have original number with an alphabetic suffix.

D. **Each submittal shall include specification section number and name in the electronic file for tracking. If this is not done, the submittal shall be rejected for correction.**

E. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate.

F. Apply Contractor's stamp, signed or initialed certifying that review,

verification of Products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and Contract Documents.

G. Schedule submittals to expedite the Project, and deliver to Owner at business address. Coordinate submission of related items.

H. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.

I. Provide space for Contractor and Design Professional Approval stamps.

J. Revise and resubmit submittals as required, identify all changes made since previous submission.

K. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions.

1.4 PRODUCT DATA

A. Submit electronic PDF files to the project manager, which will forward to the engineer.

B. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information unique to this Project.

C. After reviewed and approved provide approved electronic file for Closeout Record Documents described in Section Contract Closeout.

1.5 MANUFACTURER INSTALLATION INSTRUCTIONS

A. When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for Product Data.

B. Identify conflicts between manufacturers' instructions and Contract Documents.

C. Shall be in accordance with FBC Mechanical 304.1.

1.6 MANUFACTURER CERTIFICATES

A. When specified in individual specification sections, submit manufacturer's certificate to Owner, for review, in quantities specified for Product Data.

B. Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Owner.

1.7 WELDING CERTIFICATES

A. Provide certificates (current) for welder(s) that have passed AWS Qualification Tests per AWS D1.1 Structural Welding Code - Steel.

PART 2- PRODUCTS

A. Not Used

PART 3- EXECUTION

A. Not Used

SECTION END

SECTION 01400- STARTING OF SYSTEMS

PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Starting systems.

B. Demonstration and instructions.

C. Testing, adjusting, and balancing.

1.2 RELATED SECTIONS

A. Section Contract Closeout: System operation and maintenance data and extra materials.

1.3 STARTING SYSTEMS

A. Refer to Manufacturer’s installation and startup requirements for the air handling units. All AHUs will be installed over a weekend and a basic start-up shall be performed to provide cooling by 7 AM Monday morning.

B. Notify Owner seven days prior to start-up of each item. Factory start-up shall be provided after installation is complete and performed so as to minimize interruption to the STAR center and its tenants.

C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, or for other conditions which may cause damage.

D. Verify that tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.

E. Verify wiring and support components for equipment are complete and tested.

F. Execute start-up under supervision of responsible manufacturer's representative in accordance with manufacturers' instructions.

G. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.

H. Submit a written report in accordance that equipment or system has been properly installed and is functioning correctly.

1.4 DEMONSTRATION AND INSTRUCTIONS

A. Demonstrate operation and maintenance of Products to Owner's personnel two weeks prior to date of Substantial Completion.

B. Demonstrate Project equipment by a qualified manufacturers' representative who is knowledgeable about the Project.

C. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

D. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owners' personnel in detail to explain all aspects of operation and maintenance.

E. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled time, and designated location.

F. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

1.5 TESTING, ADJUSTING, AND BALANCING

A. Refer to Section 15990 for additional information.

PART 2 - PRODUCTS

A. Not Used

PART 3 - EXECUTION

A. Not Used

SECTION END

SECTION 01500 – CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. General: This section includes general requirements near end of Contract Time, in preparation for substantial completion, final acceptance, final payment, normal termination of contract, occupancy and similar actions evidencing completion of the work.

Specific requirements for individual units of work are specified in other specification sections.

Time of closeout is directly related to "Substantial Completion", and therefore may be either a single time period for entire work or a series of time periods for individual parts of the work which have been noted as substantially complete at different dates.

1.2 PREREQUISITES TO SUBSTANTIAL COMPLETION

A. General: Prior to requesting inspection for certification of substantial completion (for either entire work or portions thereof):

1. Provide final record documents including air handling unit factory start-up documents for the entire project of portion thereof.

2. Provide operating and maintenance manuals.

3. Provide training/instructions to Owner maintenance personnel.

4. Start-up testing of all systems.

5. Testing, balancing, adjusting and commissioning of all systems.

6. Discontinue (or change over) and remove from project site temporary facilities and services, along with construction tools and facilities, and similar elements.

7. In progress payment request, coincident with or first following date claimed, show either 95% completion for portion of work claimed as "substantially complete", or list incomplete items, value of work not completed, and reasons for being incomplete. Include supporting documentation for completion as indicated in these contract documents.

B. Inspection Procedures: Upon receipt of Contractor's request, the Design Professional will either proceed with inspection or advise Contractor of prerequisites not fulfilled. Following initial inspection, the Design Professional will

note substantial completion, or advise Contractor of work which must be performed and repeat inspection when requested and assured that work has been substantially completed. Results of completed inspection will form initial "punch-list" for final acceptance.

1.3 PREREQUISITES TO FINAL ACCEPTANCE

A. General: Prior to requesting final inspection for certification of final acceptance and final payment, as required by General Provisions and Conditions, complete the following and list known exceptions (if any) in request:

1. At the finish of substantial completion, the 95% completion payment pay app can be submitted. Once all of the punch list items are completed and verified, the final pay app for retainage can be submitted.

2. Submit copy of final punch-list of itemized work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance.

3. Complete final cleaning up requirements, including touch-up painting of marred surfaces.

4. Touch-up and otherwise repair and restore marred exposed finishes.

B. Reinspection Procedure: Upon receipt of Contractor's notice that the work has been completed, including punch-list items resulting from earlier inspections, and excepting incomplete items delayed because of acceptable circumstances, the Design Professional will reinspect the work. Upon completion of reinspection, the Design Professional will either prepare certificate of final acceptance or advise Contractor of work not completed or obligations not fulfilled as required for final acceptance. If necessary, procedure will be repeated.

C. Record Sample Submittal: Immediately prior to date(s) of substantial completion, the Design Professional and the Owner will meet with Contractor at site, and will determine which (if any) of submitted samples maintained by Contractor during progress of the work are to be retained by the Owner. Comply with the Design Professional instructions for packaging, identification marking, and delivery.

2.1 INSTRUCTIONS TO MAINTENANCE PERSONNEL

A. Where instructions to maintenance personnel are specified in other sections furnish, without additional expense to the Owner, the services of competent instructors, who will give full instruction in the care, adjustment, and operation of the systems and equipment to designated maintenance personnel.

B. Each instructor shall be familiar with all parts of the system on which he is to give instruction and shall be trained in operating theory as well as in practical

operation and maintenance work. Employ factory trained instructors wherever practical and available.

C. Unless otherwise required or approved, give instruction during the regular work week prior to the equipment being accepted and turned over to the Owner for regular operation. Where significant changes or modifications in equipment are made under the terms of the guarantee, provide additional instruction as may be necessary to acquaint the operating personnel of the changes or modifications. When more than four man-days (32 hours) of instruction are specified, approximately half of the time shall be classroom instruction and the other half with the equipment or system.

D. Utilize the maintenance manual for the system or equipment as a text for instruction. Instruction shall include a review of the maintenance manual.

E. Upon completion, obtain written acknowledgment from the Owner that the required instruction was completed.

2.2 POSTED OPERATING INSTRUCTIONS

A. Post operating instructions approved by the Design Professional for each system and each principal piece of equipment for the use of operation and maintenance personnel.

Include wiring and control diagrams showing the complete layout of the entire system including equipment, piping, and valves, and control sequence, framed under glass or approved laminated plastic and posted where directed by the Design Professional.
Printed or engraved operating instructions for each principal piece of equipment including start-up, proper adjustment, operating, lubrication, shut-down, safety precautions, procedure in the event of equipment failure, and any other necessary items of instruction as recommended by the manufacturer of the unit shall be attached to or posted adjacent to the piece of equipment.

Operating instructions exposed to the weather shall be made of weather-resisting materials or shall be suitably enclosed to be weather protected.

Operating instructions shall not fade when exposed to sunlight and shall be secured to prevent easy removal or peeling.

SECTION END

SECTION 15010 - BASIC MECHANICAL REQUIREMENTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Basic mechanical requirements specifically applicable to Division 15 Sections, in addition to Division 1—General Requirements, General Conditions and Supplementary General Conditions.

B. This Division of the specifications includes mechanical;

1. Heating, Ventilating, Air Conditioning (HVAC)

1.02 GENERAL NOTES

A. All work shall be performed in strict accordance with the construction documents.

B. All work shall be performed at a minimum in strict accordance with the requirements of the 2023 Florida Building Code (7th Edition) and the 2023 Florida Fire Protection Code.

C. The contractor shall coordinate the sequencing and execution of all trades in strict conformance with the requirements of all construction drawings and contract documents.

D. The contractor shall maintain and protect from damage all Portions of the existing facility scheduled to remain or not indicated for demolition. All damaged areas and elements shall be replaced to match existing adjacent construction in all respects.

E. Prior to any demolition, the contractor and owner shall walk through the project and establish a Punch List of existing conditions. Items not identified and later damaged due to construction shall be the contractor's responsibility.

F. Field verify all dimensions prior to demolition work. Coordinate as required for new work.

G. The contractor shall provide for the cutting, patching, and painting of all exterior and interior finished surfaces to match existing as required to facilitate scope of work.

H. The contractor shall protect the tenants from construction activities and provide for a secure construction site.

I. The contractor shall coordinate all work with Owner's policies and procedures prior to commencement of construction.

J. The contractor shall construct temporary dust and noise control barrier ass required for the safety and protection of the occupants during work in progress and throughout the phases of the work. Coordinate such barriers with the Owner and occupants as required.

K. Any work that will cause interruptions to Star Center tenants, whether the work is inside the tenant space or outside of the tenant space, especially welding, must be completed after hours or on weekends and coordinated with the Star Center and the tenants.

1.03 SPECIAL GENERAL NOTES

Special security clearance requirements below roof work locations: all contractors must apply for access into Raytheon spaces and must be U.S. citizens. Each person must provide proof of citizenship (Driver License AND passport (current or expired). There are no exceptions.

A. Areas Below roof work are occupied by a government contractor (Raytheon) and requires a security background check for all contractor personnel working inside Raytheon areas. All contractor employees required to work within the Raytheon tenant areas for this project shall be required to register with, and be authorized by Raytheon security to work in their spaces. All visitors and crew personnel shall coordinate arrival and departure times with facility engineer. A maximum of three non-escort badges will be awarded to the prime contractor. Each subcontractor will be allowed a maximum of two non-escort badges. All other technicians shall apply for daily visitor badges when entering Raytheon. Security clearance of employees required to work within the Raytheon tenant spaces shall be obtained prior to the start of work in these areas. Contact the Star Center facility engineer for more information.

B. Existing roof surface protection and approved contractor note: at all times, areas on the roof used for staging work / used as access to the project areas, shall be covered with plywood sheathing to protect the existing roof surface from damage or punctures, no exceptions. The prime contractor is responsible for repairing and its cost for any damage to the roof caused by the prime contractor or any of the subcontractors. A Star Center approved roofing contractor shall be used for all roofing work on this project, no exceptions. Any new roofing work within the scope of the project, or repair to the damages to the existing roof caused by the contractor during the project shall be done by the contractor using a Star Center approved roofing contractor. (PCG SBR registered roofing contractors – Precision Roofing Services PRS or Allied Roofing).

C. The contractor shall provide a proposed work schedule to the Star Center (SC) project manager (PM) at the time of the pre-construction meeting. Refer to project specifications and drawings. The work schedule for all trades shall be coordinated with the Star Center PM Any work affecting tenant operations shall be scheduled at night or on the weekend as approved by the Star Center manager and tenant(s).

D. The space below AHU-104 is occupied by a tenant that requires escorting by the tenant at all times. This work shall be scheduled and coordinated well in advance with the SC PM and the tenant representative. Any work in Raytheon spaces shall follow the Raytheon badging requirements and contractor safety requirements listed in item 1, and elsewhere in the project specifications and drawings.

E. The removal and installation of AHU-104 utilizing a crane shall be completed over scheduled weekend. Crane lifting activities shall start at approximately 5PM on a Friday and unit installation shall be completed by Monday morning at 7AM.

F. The removal of AHU 161 & 162 shall be completed over scheduled weekends. Starting at approximately 5PM on Friday and unit installation completed by 7AM on Monday.

G. There is structural welding required in the project. Submit certifications for welder(s) on the project. Their certification shall be in accordance with AWS D1.1 Structural Welding Code – Steel. Provide certifications during submittal process.

1.04 INTENT

A. It is the intention of these specifications and drawings to call for finished work, tested, and ready for operation. Wherever the word "provide" is used, it shall mean "furnish and install complete and ready for use."

B. Minor details not usually shown or specified, but necessary for the proper installation and operation, shall be included in the work, the same as if herein specified or shown.

C. The term “Basis of Design” used throughout this document shall be understood to mean a particular manufacturer’s equipment (as scheduled specifically on the drawings or specifications) has been used as the basis by the Design Engineer to establish physical dimensions, quality, and performance required, in addition to providing a basis for interaction with other ancillary components and/or other trades. Therefore, it shall be understood that use of a piece of equipment other than that identified as the Basis of Design may impact performance of an overall engineered system or may require revisions to ancillary interfacing equipment, and thus any manufacturer’s equipment other than that listed as Basis of Design shall require written approval via Addendum prior to bid except where the manufacturer’s name is specifically listed in these specifications as a pre-approved substitute or an accepted manufacturer. All substitutes, pre-approved substitutes, accepted manufacturers, and/or Basis of Design are subject to all requirements of quality, physical characteristics (i.e., dimension, sound, etc), and performance, etc., as set forth in these specifications and contract documents.

1.05 SURVEYS AND MEASUREMENTS

A. Base all measurements, both horizontal and vertical from established bench marks. All work shall agree with these established lines and levels. Verify all measurements at site and check the correctness of same as related to the work. All material take-offs for the site shall be field measured prior to bids.

1.06 DRAWINGS

A. Drawings are diagrammatic and indicate the general arrangement of systems and work included in the contract. Drawings are not to be scaled. The architectural drawings and details shall be examined for exact location of fixtures and equipment. Where they are not definitely located, this information shall be obtained from the Architect.

B. If directed by the Engineer, the Contractor shall, without extra charge, make reasonable modifications in the layout as needed to prevent conflict with work of other trades or for proper execution of the work.

C. At the time of each shop drawing submission, the Contractor shall call the Engineer's attention (in writing) to, and plainly mark on shop drawings, any deviations from the Contract Documents. (See Paragraph 1.06, B.)

D. Samples, drawings, specifications, and catalogs submitted for approval shall be properly labeled indicating specific service for which material or equipment is to be used, location, section and article number of specifications governing, Contractor's name, and name of job. All equipment shall be labeled to match labeling on contract documents.

E. Control Systems: Submit description of operation and schematic drawings of the entire control system. Include bulletins describing each item of control equipment or component.

F. Catalogs, pamphlets, or other documents submitted to describe items on which approval is being requested, shall be specific and identification in catalog, pamphlet, etc. of item submitted shall be clearly made in ink. Data of a general nature will not be accepted.

G. Approval rendered on shop drawings shall not be considered as a guarantee of measurements or building conditions. Where drawings are approved, said approval does not mean that drawings have been checked in detail; said approval does not in any way relieve the Contractor from his responsibility or necessity of furnishing material or performing work as required by the contract drawings and specifications.

H. All shop drawings shall be submitted to the Engineer by Contractor no later than 30 days from the day of contract award.

I. Failure of the Contractor to submit shop drawings in ample time for checking shall not entitle him to an extension of contract time, and no claim for extension by reason of such default will be allowed.

J. Submit all Division 15 submittals at one time in one integral group. Piece-by-piece submission of individual items will not be acceptable. Engineer may check contents of each submittal set upon initial delivery; if not complete as set forth herein, submittal sets may be returned to Contractor without review and approval and will not be accepted until made complete.

K. Routing and methods of support of piping shall be shown on shop drawings and shall have the review of the Engineer prior to fabrication and installation. Spacing of supports shall be as specified in Section 15140, or if not specified, shall not exceed the suggested maximum spacing recommended in ANSI B31.1 for each type of line. Supports shall be fabricated as detailed on reviewed shop drawings. Provide supports so located that temporary supports are not required during removal of valves or equipment. Insofar as possible, support lines directly from Building structure.

L. At the close of the job, prior to final review, electronic PDF files on thumb drive or CD ROM shall be submitted by transmittal letter to the Engineer for review and acceptance:

1. Equipment warranties;
2. Contractor's warranty;
3. Parts list and manuals for all equipment;
4. Balance and test readings;
5. Operating instructions (in writing);
6. Written instructions on maintenance and care of the system.

1.07 SUBMITTALS

A. Submit Manufacturer's published technical data, catalog cuts, wiring diagrams, shop drawings, samples and testing and balancing logs for all elements of the HVAC work. Submit under provisions of General Conditions and Supplementary General Conditions.

B. No equipment, piping, ductwork or components shall be fabricated, delivered, erected, or connected other than from shop drawings reviewed and approved by the Engineer.

C. It shall be understood that review of shop drawings by the Engineer does not supersede the requirement to provide a complete and functioning system in compliance with the Contract Documents.

D. Equipment Supports: Submit detailed shop drawings indicating equipment weight and dimensions, support material, connections, anchoring, and vibration isolation.

E. Submittals shall include, but not be limited to the following:

1. Submit long lead items first (AHU's, VFD's, etc.), then remaining items in one package.

2. All equipment; cooling, heating, plumbing, electrical motors, starters, controls, etc.

3. Voltage, phase, and amps of each electrical item, such as motors, etc.

4. All auxiliary equipment.

5. Pipe, ductwork, valves, insulation, etc.

1.08 SUBSTITUTIONS

A. Materials and equipment are specified herein by a single or by multiple Manufacturers to indicate quality and performance required. The drawings are based upon equipment scheduled on drawings and specified. If another Manufacturer is considered for substitution during the bidding process, the Mechanical Contractor shall be responsible for coordinating all electrical, mechanical or structural changes, and any costs associated with said changes. Comparable equipment Manufacturers which are listed below equipment indicated as "Basis of Design" shall be considered as substitutes. Manufacturers other than the Basis of Design shall submit catalog information and 1/4" scale plan and section drawings showing proper fit and all clearances for maintenance items.

B. The only Substitutions shall be considered approved so named in the specifications as a pre-approved substitute. The approval of any substitutions shall not be construed as a shop drawing approval. The substitute or equal must be submitted as described in the specifications and meet all the requirements of the specifications and drawings.

C. Where the Contractor proposes to use an item of equipment other than that specified or detailed on the drawing, which requires any redesign of the structure, partitions, foundations, piping, wiring, or any other part of the mechanical or electrical, all such redesign, and all new drawings and detailing required therefore, shall be prepared by the Subcontractor at his own expense and submitted to the Architect/Engineer for approval.

D. Where such approved deviation requires quantity and arrangement of ductwork, piping, wiring, conduit, and equipment from that specified or indicated on the drawings, the Contractor shall furnish and install any such ductwork, piping, structural supports, insulation, controllers, motors, starters, electrical wiring and conduit, and any other additional equipment required by the system, at no additional cost to the Owner.

1.09 COOPERATION WITH OTHER TRADES

A. Give full cooperation to other trades and furnish in writing to the General Contractor, with copies to the Architect, any information necessary to permit the work of all trades to be installed satisfactorily and with the least possible interference or delay.

B. When work installed under this Division will be in close proximity to, or will interfere with work of other trades, assist in working out space conditions to make a satisfactory adjustment. If so directed by the Engineer/Architect, prepare composite working drawings and sections at a suitable scale not less than 1/4" = 1'0", clearly showing how work is to be installed in relation to the work of other trades. If the work is installed before coordinating with other trades, or so as to cause any interference with work of other trades, make all the necessary changes in work to correct the condition without extra charge.

C. Furnish to other trades, as required, all necessary templates, patterns, setting plans, and shop details for the proper installation of work and for the purpose of coordinating adjacent work.

1.10 PROTECTION

A. Protect all work and material provided under this Division from damage. All damaged equipment work or material provided under this Division shall be replaced with new. Re-builts are not acceptable.

B. Protect all work and equipment until inspected, tested, and accepted. Protect work against theft, injury, or damage; and carefully store material and equipment received on site which are not immediately installed. Close open ends of work with temporary covers or plugs during storage and construction to prevent entry of obstructing material.

1.11 SCAFFOLDING, RIGGING, AND HOISTING

A. Provide all scaffolding, rigging, hoisting, and services necessary for erection and delivery into the premises of any equipment and apparatus furnished. Remove same from premises when no longer required.

1.12 REMOVAL OF RUBBISH

A. This Contractor shall <u>at all times</u> keep premises free from accumulations of waste materials or rubbish caused by his employees or work. Clean every day at completion of work he shall remove all his tools, scaffolding, materials, and rubbish from the building and site. He shall leave the premises and his work in a clean, orderly, and acceptable condition every day.

B. All plaster, concrete, cement, etc. shall be removed from all pipe, hangers, and equipment prior to painting and/or concealment.

1.13 SAFETY

A. This Contractor shall comply with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.333), Title 29—Labor, Chapter XIII, Bureau of Standards, Department of Labor, Part 1518—Safety and Health Regulations for Construction; and that his housekeeping and equipment be maintained in such a manner that they comply with the Florida Industrial Commission Safety Code and Regulations of the Federal Williams—Steiger Occupational Safety and Health Act of 1970 (OSHA), wherein it states that the Contractor shall not require any laborer or mechanic employed in the performance of the contract to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety.

1.14 SUPERVISION

A. This Contractor shall provide a competent, experienced, full time superintendent who is acceptable to the Engineer and Owner, and who is authorized to make decisions on behalf of the Contractor.

1.15 LUBRICATION

A. Where necessary, provide means for lubricating all bearings and other machine parts. If a part requiring lubrication is concealed or inaccessible, extend a lubrication tube with suitable fitting to an accessible location and suitably identify it.

B. After installation, properly lubricate all parts requiring lubrication and keep them adequately lubricated until final acceptance by the Owner.

1.16 VALVE CHARTS, TAGS, AND NAMEPLATES

A. Provide at a location designated by the Engineer and the Owner, a valve chart enclosed in an aluminum frame with clear plastic shield. Chart shall show the designated number of each valve, its location and service. Valve numbers shall be same as those shown on the "As-Built" drawings.

B. Each valve shown on the chart shall have a 1-1/2" diameter, 18 gauge brass tag with clearly visible stamped numbers, securely fastened to the valve stem or handle with a heavy brass hook or chain.

C. Each panel mounted switch, thermometer, gauge, or controller for fans, pumps, or other electrically operated equipment shall be clearly designated by a black plastic nameplate of size approved by the Engineer securely fastened with metal pins or screws to the panel directly under the item designated.

D. Refer to Section 15190 for additional information.

1.17 WIRING DIAGRAMS

A. Furnish for use under Division 16 all wiring diagrams as may be required for the installation of the wiring to insure proper operation and control of the equipment provided under this Division. Provide the diagrams in time to avoid delays.

1.18 MATERIAL AND WORKMANSHIP

A. All materials and apparatus required for the work, except as specifically specified otherwise, shall be new, of first-class quality, and shall be furnished, delivered, erected, connected and finished in every detail, and shall be so selected and arranged as to fit properly into the building spaces. Where no specific kind or quality of material is given, a first-class standard article as approved by the Engineer shall be furnished. Refer to substitutions in this Section.

B. Unless otherwise specifically indicated on the plans or specifications, all equipment and materials shall be installed with the approval of the Engineer in accordance with the recommendations of the Manufacturer. This includes the performance of such tests as the Manufacturer recommends.

1.19 QUIET OPERATION AND VIBRATION

A. All work shall operate under all conditions of load without any sound or vibration which is objectionable in the opinion of the Engineer and the Owner. In case of moving machinery, sound, or vibration noticeable outside of room in which it is installed, or annoyingly noticeable inside its own room, will be considered objectionable. Sound or vibration conditions considered objectionable by the Engineer and the Owner shall be corrected in an approved manner at no additional expense to the Owner. Vibration control shall be by means of approved vibration eliminators in a manner as specified in Section 15242.

1.20 ACCESSIBILITY

A. This Contractor shall be responsible for the sufficiency of the size of shafts and chases, the adequate clearance in double partitions and hung ceilings for the proper installation of his work. He shall cooperate with all other Contractors whose work is in the same space, and shall advise them of his requirements. Such spaces and clearances shall, however, be kept to the minimum size required.

B. This Contractor shall locate all equipment which must be serviced, operated, or maintained in fully accessible positions. Equipment shall include but not be limited to, valves, traps, clean-outs, motors, controllers, switchgear, and drain points. If required for better accessibility, furnish access doors for this purpose. Minor deviations from drawings may be made to allow for better accessibility.

C. This Contractor shall provide the access panels for concealed mechanical equipment, valves, controls, dampers, or other device requiring service. (Refer to Paragraph 1.20 of this section.)

1.21 FOUNDATIONS, SUPPORTS, PIERS, AND ATTACHMENTS

A. **Construction of foundations, supports, pads, bases, and piers where mounted on the floor, shall be the same materials and same quality of finish as the adjacent and surrounding flooring material.**

B. This Contractor shall furnish and install all necessary foundations, supports, pads, bases and piers required for all air conditioning equipment, piping, pumps, tanks, compressors, and for all other equipment furnished under this Division, and shall submit drawings to the Architect and Engineer for approval before purchase, fabrication or construction of same.

C. For rotating machinery, and for all equipment where foundations are indicated, provide concrete pads as shown. All pads shall be extended six inches (6") beyond machine base in all directions with top edge chamfered. Inset six inch (6") steel dowel rods into floors to anchor pads. All pads shall have a minimum of 6 x 6 W2.9/W2.9 WWF unless otherwise noted. Shop drawings of all foundations and pads shall be submitted to the Engineer for approval before same are constructed.

D. All equipment, unless shown otherwise, shall be securely attached to the building structure in an approved manner. Attachments shall be of a strong and durable nature and any attachments that are, in the opinion of the Architect and the Engineer, not strong enough shall be replaced as directed.

1.22 WELDING

A. All structural welding shall be done per the structural drawings. The Contractor shall furnish proof of the competency of each welding operator for both field and shop welds and during the submittal process. Certification meeting – AWS-D1.1. Refer to section 01300 – Submittals for additional information.

B. Welded pipe joints shall be made by electric process in accordance with the Code of Pressure Piping ASA B31.1.

C. Welding shall be done with good quality modern welding equipment, by competent operators, and in thorough, first class manner, conforming to AWS Standards.

D. Filler-metal for the welding process shall conform to ASTM A233 "Specification for Mild Steel Arc-Welding Electrodes". Classification of electrodes shall be one of the following: E6010, E6015, E7016, E7018.

E. When welding is to be performed, precautionary measures must be taken to prevent fire. Remove flammable materials and debris from the area.

Provide an appropriate extinguisher nearby and a fire-watch at all times. Refer to Item O. for hot work permit.

F. Pipes shall be cut short and cold sprung into place before welding or fabricating to compensate for expansion of lines when hot.

G. Welds shall be of the single vee butt type. Pipe end shall be shop beveled to 45 degrees to within 1/16 inch of the inside wall surface.

H. The abutting ends of the joints shall be separated before welding to permit complete fusion, tacked in two or more points to maintain alignment, and welded. Welding shall be continuous around the pipe.

I. Welds shall be of sound weld metal, thoroughly fused into the ends of the pipe and to the bottom of the vee, and shall be built up in excess of the pipe wall to give a reinforcement of one-quarter (1/4) the pipe wall thickness and in such a manner that one weld metal will present a gradual increase in thickness from the surface of the pipe to the center of the weld. The minimum width of the weld shall be 2-1/2 times the pipe wall thickness.

J. The fillet welds from the flanges of fittings shall be fused into the pipe and plate for minimum distance of 1-1/2 times the pipe wall thickness and shall be built up to present a minimum throat thickness of depth of weld of 1-1/4 times the pipe wall thickness.

K. Branch connections shall be fabricated by welding. Openings cut into pipe for welded connections shall be accurately made to give carefully matched intersections and welding fittings shall be carefully welded into the pipe system.

L. Welding ells shall be used at all turns in welded pipe lines; no mitered ells will be approved.

M. Where branch piping is three times smaller than the main, branch connections shall be made up with the appropriate manufactured weld-on fitting. Welded tees shall be used for all other branch connections, unless otherwise approved by the Architect/Engineer for a specific case.

1. Approved Manufacturers
    a. Allied Piping Products.
    b. Bonney Forge.
    c. Branch Connections.
    d. Branchlets.
    e. Tube Turn.
    f. Thread-O-Lets.

N. Welds in piping shall be annealed after welding to remove the welding strains. The temperature need not exceed that causing a dull red, and shall

be uniform around the pipe. Welds made in place shall be annealed, but the pipe shall be free to expand and shall be properly supported so as to avoid stresses. Annealing shall always be followed by slow cooling.

O. **Prior to any welding on roof or in the building, a hot work permit must be obtained from Star Center Operations.**

1.23 REGULATORY REQUIREMENTS

A. Conform to applicable Codes and Standards as follows:

1. Standard

a. Certain standard materials and installation requirements are described by reference to standard specifications. These standards are as follows:

ASA..... American Standards Association.

ASTM ..... American Society for Testing Materials.

ASME..... American Society of Mechanical Engineers Code of Unfired Pressure Vessels.

NEMA..... National Electrical Manufacturers Association.

UL ..... Underwriters Laboratories.

ANSI..... American National Standards Institute.

ASHRAE ..... American Society of Heating, Refrigerating and Air Conditioning Engineers.

SMACNA..... Sheet Metal and Air Conditioning Contractor's National Association.

AMCA..... Air Moving and Conditioning Association.

ARI ..... Air Conditioning and Refrigeration Institute.

AMA ..... Acoustical Materials Association.

AWS……..American Welding Society

For additional standards and requirements see other sections of the specifications.

Whenever a reference is made to a standard, installation and materials shall comply with the latest published edition at the time project is bid unless otherwise specified herein.

2. Codes And Rules

   a. All material furnished and all work installed shall comply with the following codes as they apply to this project:

      - National Electric Code.
      - Regulations of the Florida Industrial Commission Concerning Safety.
      - Applicable County, State and Local Building Codes.
      - Local and State Fire Marshal Rules and Regulations.
      - Occupational Safety and Health Agency Standards (OSHA).
      - Florida State Board of Health Rules and Regulations.
      - Florida Building Code—Mechanical – Eighth Edition (2023)
      - Florida Building Code – Energy Conservation – Eighth Edition (2023)

      Applicable codes shall be those adopted by the authority having jurisdiction at the time project is bid.

3. Permits, Fees And Inspections

   a. The Contractor shall give all necessary notices, obtain all permits and pay all government fees, sales taxes and other costs, including utility connections or extensions, in connection with this work; file all necessary approvals of all governmental departments having jurisdiction.

   b. Obtain all required certificates of inspection for his work and deliver to the Owner/Engineer the same certificates before request for acceptance and final payment for the work.

   c. The Contractor shall include in the work, without extra cost to the Owner, any labor, materials, services, apparatus and drawings required to comply with all applicable laws, ordinances, rules and regulations.

   d. The Contractor shall inform the Engineer of any work or materials which conflict with any of the applicable codes, standards, laws and regulations before submitting his bid.

1.24 SCOPE OF WORK

A. The scope of the work included under this Division of the Specifications shall include complete mechanical systems as shown on the plans and as

specified herein. The General Conditions and Special Conditions of these specifications shall form a part and be included under this Section of the Specifications. Provide all supervision, labor, material, equipment, machinery, plant, and any and all other items necessary to complete the mechanical systems. All items of equipment are specified in the singular; however, provide and install the number of items of equipment as indicated on the drawings, and as required for complete systems.

B. Systems shall include all appurtenances as required to achieve the operating conditions as shown and specified and shall result in a superior installation.

C. Scope of work shall include, but not be limited to, the following:

1. Demolition

a. Remove air handling units as shown on the drawings and their respective chilled water piping, valves, controls, supports, ductwork (as noted on drawings), etc.

b. Remove existing ductwork as noted on drawings.

2. New Work

a. Provide air handling systems complete with coils, filters, fans, associated ductwork, controls, etc. Utilize new control points as shown.

b. Insulate all new chilled water piping. Replace all insulation on existing piping system where it has been removed or damaged. Insulate all new equipment with cold surfaces.

c. Provide rough balancing of air and chilled water systems (Air Handling Units) at initial startup of units. Refer to Section 15990 for final test and balance.

d. Final connections of ductwork and piping (chilled) to equipment.

e. New HVAC equipment, accessories and their controls shall be Bacnet compatible and shall interface with new NIAGRA Supervisory Software.

D. All electrical work required to support mechanical equipment or is otherwise necessary to operate mechanical equipment, shall be the responsibility of the Mechanical Contractor (including, but not limited to) electrical motors for all motor-operated equipment required under this Division, motor controllers, all starters not provided by the Electrical Contractor (coordinate with Electrical Contractor), pilot lights and relays, line and low voltage control wiring, raceways, connections to switches, and other electrical devices furnished with temperature control systems except as otherwise provided for in other Divisions of this Specification.

E. Any equipment submitted for prior approval shall be submitted with the following written information specifically for the submitted project application: specific model numbers, dimensional data, performance data and other data as requested by the Engineer. General or ambiguous submittals will not be considered for prior approval.

1.25 REMOVALS, RECONNECTIONS, AND RESTORATIONS

A. Demolition of existing piping, equipment, etc., shall be done as indicated on the Drawings. Existing equipment to be removed shall be offered to the Owner. If the Owner wishes to utilize the existing equipment elsewhere, this Contractor shall move the equipment to a site designated by the Owner. All material to be removed shall be discarded by the Contractor and they shall not be used again.

B. All demolition work shall be completely coordinated with the Owner. Demolition and reconnections requiring shut-down of existing systems shall be scheduled with the Owner/Engineer. If shut-down can only be accommodated on the weekend, or after normal working hours, such work shall be done at no additional cost to the Owner. If it is not possible to schedule sufficient Owner coordinated and approved downtime to complete the entire demolition and reconnection scope such that all or a part of the facility's service(s) will be disrupted, affecting the normal business operation of the facility (i.e., loss of HVAC or plumbing), the Contractor shall provide temporary accommodations (i.e., temporary HVAC or portable toilets, etc), for the duration of the shutdown at no additional cost to the Owner.

C. Location, capacity, size, etc. of existing equipment, piping, etc., was obtained from field survey and as built drawings. Verify all conditions at site prior to commencing with work. Notify Engineer of any discrepancies prior to starting work or ordering material.

D. Survey existing facilities and utilities as necessary to determine location of shut-off or disconnect devices, drains, vents, etc. Drain, refill, and purge existing water piping circuits to make new piping connections. It is the Contractor's responsibility to verify the existing piping and identify which is supply and return, chilled water, and hot water, prior to starting demolition for new piping connections.

E. Temporarily store all items to be relocated, if required. Contractor shall be responsible for safe storage of all such items and shall replace any items lost or damaged during storage removal or reinstallation.

1.26 PROJECT/SITE CONDITION

A. Install Work in locations shown on Drawings, unless prevented by Project conditions.

B. Prepare drawings showing proposed rearrangement of work to meet project conditions, including changes to work specified in other sections. Obtain permission of Owner/Engineer before proceeding.

1.27 CLOSE-OUT DOCUMENTS

A. This Contractor shall furnish Operating and Maintenance (O&M) manuals and As-built drawings before final payment will be issued.

1. O&M manuals shall be submitted in accordance with Division 1, General Requirements, and shall consist of the following (at a minimum):

a. All Contractor and Manufacturer warranties.

b. List of Contractors and Parts and Equipment Suppliers—complete with contact person, proper company name, address, and telephone numbers.

c. Parts list for supplied equipment—including a checklist of recommended components to be stocked on-site.

d. Maintenance and replacement parts manuals.

e. Start-up and shutdown operating instructions.

f. Manufacturer's literature describing the equipment, which shall include wiring diagrams and operating specifications.

g. Control system sequence of operation, system diagram, and backup disks of the system configuration.

h. Copies of final test and balance reports.

2. As-built drawings shall consist of AutoCAD drawings (plotted) and copies of each AutoCAD file on a Flash Drive.

1.28 EXISTING CONDITIONS—EQUIPMENT AND SYSTEMS

A. For purposes of this Contract, the assumption during bidding is that any and all existing fire alarm, controls, electrical systems, etc., are complete and operating properly.

B. Before commencing any work on fire alarm, energy management, or electrical systems, or any work which affects them, the Specialty Contractor shall examine such systems thoroughly. If this Contractor finds any portion of any system not functioning fully and properly, he shall notify the Project Engineer in writing exactly and precisely which item(s) are not working. (This paragraph does not require diagnosis as to why such item(s) are not working nor the repair of such.)

C. Upon notification to the Owner, the Engineer shall verify whether such report is accurate. If found not accurate, the Engineer shall demonstrate such to this Contractor. If the report is found accurate, the Owner may either:

1. Correct such deficiencies with his own Maintenance forces or by employing another Specialty Contractor.

2. Require of the Contractor for this construction project a proposal sum to thoroughly diagnose the cause of such deficiencies and the specifying of precise corrective action needed.

3. Upon receipt of such proposal sum, the Owner may elect to employ the Contractor, by Change Order, to effect such corrections; or, with the Contractor's approval, employ the Contractor's appropriate Specialty Contractor directly by Purchase Order, to effect such corrections; or the Owner may achieve corrections to the system by other means.

D. However, upon commencing any work under this Contract on fire alarm, energy management, or electrical systems under this Construction Contract, this Contractor has accepted the systems as complete and functioning properly. From the time of commencing work on such systems, they become the responsibility of this Contractor to maintain and keep functional through the Date of Final Substantial Completion. If, at the time of Final Substantial Completion, such a system or portion of such system is found not to be functioning properly, such item shall be listed on the "punchlist" and shall be corrected by this Contractor. Once corrected, inspected by the Engineer and found to be functioning properly, the item shall be removed from the "punchlist" as satisfied.

E. The guarantees, warranties, and obligations of this Contractor for this work under this Contract shall not be extended to include the existing fire alarm, security alarm, other alarm systems, intercom, lighting, energy management and electrical systems beyond the date of final acceptance of the work under this Contract.

1.29 PAINTING

A. Provide painting and touch-up painting of all exposed piping, ductwork, support structures, etc., and all unfinished equipment (concealed or exposed). Refer to Section 15190 for color scheme requirements of pipes and identification markers.

B. Deliver materials to job site in new, original, and unopened containers bearing manufacturer's name, trade name, and label analysis. Store where indicated in accordance with manufacturer's instructions.

C. Do not apply paint in rain, fog or mist or when relative humidity exceeds 85%. Do not apply paint to damp or wet surfaces.

D. Protect work of other trades. Correct any painting related damages by cleaning, repairing, or replacing, and refinishing, as directed by Engineer.

E. Provide finish coats which are compatible with prime paints used. Provide barrier coats over incompatible primers where required. Notify Engineer in

writing of anticipated problems using specified coatings with substrate primed by others.

F. Perform preparation and cleaning procedures in strict accordance with coating manufacturer's instructions for each substrate condition.

G. Remove hardware and accessories, machined surfaces, plates, lighting fixtures and similar items in place and not to be finish-painted or provide surface-applied protection. Re-install removed items and remove protective coverings at completion of work.

H. Clean ferrous surfaces which are not galvanized or shop-coated. Remove oil, grease, dirt, loose mill scale and other foreign substances by solvent or mechanical cleaning. Touch-up shop-applied prime coats wherever damaged. Clean galvanized surfaces free of oil and surface contaminants with non-petroleum based solvent. Completely paint all welds prior to application of insulation or other protective covering. Non-insulated piping shall be painted entirely.

I. Mix, prepare, and store painting and finishing materials in accordance with manufacturer's directions. Use applicators, and techniques best suited for materials and surfaces to which applied.

J. Application

1. Apply painting and finishing materials in accordance with manufacturer's directions. Use applicators, and techniques best suited for materials and surfaces to which applied.

2. Apply additional coats when undercoats, stains or other conditions show through final paint coat, until paint film is of uniform finish, color, and appearance.

- SECTION END -

SECTION 15140 - SUPPORTS AND ANCHORS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Pipe, Duct, and Equipment Hangers, Supports, and Associated Anchors.

B. Equipment Bases and Supports.

C. Flashing and Sealing Equipment and Pipe Stacks.

1.02 RELATED WORK

A. Section 15010.....Basic Mechanical Requirements.

B. Section 15260.....Piping Insulation.

C. Section 15510.....Hydronic Piping.

D. Section 15855.....Air Handling Units with Coils.

E. Section 15890.....Ductwork.

1.03 SPECIAL REQUIREMENTS

A. Contractor shall submit shop drawings on products and methods of pipe supports.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. B-Line Systems.

B. Grinnell.

C. F and S.

2.02 PIPE HANGERS AND SUPPORTS

A. Hangers for Pipe Sizes 1/2 to 2 Inch: Carbon steel, adjustable swivel, split ring (copper plated for copper pipe, hot dipped galvanized coating on non-copper pipe).

B. Hangers for Pipe Sizes 2 to 4 Inches and Cold Pipe Sizes 6 Inches and Over: Carbon steel, adjustable, clevis (copper plated for copper pipe, hot dipped galvanized coating on non-copper pipe).

C. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods; cast iron roll and stand for hot pipe sizes 6 inches and over.

D. Wall Support for Pipe Sizes to 3 Inches: Cast iron hook.

E. Wall Support for Pipe Sizes 4 Inches and Over: Welded steel bracket and wrought steel clamp; adjustable steel yoke and cast iron roll for hot pipe sizes 6 inches and over. Refer to drawings for special support details.

F. Floor Support for Pipe Sizes to 4 Inches and All Cold Pipe Sizes: Cast iron adjustable pipe saddle, locknut nipple, floor flange, and concrete pier or steel support.

G. Shield for Insulated Piping 2 Inches and Smaller: 18 gage galvanized steel shield over insulation in 180 degree segments, minimum 12 inches long at pipe support.

H. Shield for Insulated Piping 2-1/2 Inches and Larger (Except Cold Water Piping): Pipe covering protective saddles.

I. Shields for Insulated Cold Water Piping 2-1/2 Inches and Larger: Hard block non-conducting saddles in 90 degree segments, 12 inch minimum length, block thickness same as insulation thickness.

J. Offset Pipe Clamp: Carbon steel, hot dipped galvanized finish (copper plated for copper pipe) for supporting vertical pipe away from wall.

K. Refer to drawings for additional supports.

2.03 HANGER RODS

A. Hanger Rods: Threaded both ends, threaded one end, or continuous threaded. Hanger rods shall be zinc plated steel.

2.04 INSERTS

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

2.05 FLASHING

A. Metal Flashing: 22 gage galvanized steel.

B. Lead Flashing: 5 lb/sq.ft. sheet lead for waterproofing; one lb/sq.ft. sheet lead for soundproofing.

C. Flexible Flashing: 47 mil thick sheet butyl; compatible with roofing.

2.06 FABRICATION

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

B. Design hangers without disengagement of supported pipe.

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

2.07 MATERIAL/FINISH

A. General Locations: Steel pipe hangers, miscellaneous steel supports, hardware, bolts, washers, nuts, screws, etc., not specified to be plated or coated shall be hot dipped galvanized with a minimum of 1.50 oz/ft. on all sides and all field cuts shall be zinc coated.

B. Located In or Around Cooling Tower Yards: Pipe hangers, equipment supports, miscellaneous structure components, hardware, bolts, washers, nuts, screws, etc., shall be non-metallic polyester resin, vinyl ester resin, fiberglass, glass reinforced polyurethane or 316 stainless steel.

PART 3 - EXECUTION

3.01 INSERTS

A. Provide inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.

B. Provide hooked rod to concrete reinforcement section for inserts carrying pipe over 4 inches.

C. Where concrete slabs form finished ceiling, provide inserts to be flush with slab surface.

3.02 PIPE HANGERS AND SUPPORTS

A. Support horizontal piping as follows:

PIPE SIZE (INCHES)	MAXIMUM HANGER SPACING	HANGER ROD DIAMETER
1/2 to 1-1/4	6'-6"	3/8"
1-1/2 to 2	9'-0"	3/8"
2-1/2 to 3	10'-0"	1/2"
4 to 6	10'-0"	3/4"
8 to 12	14'-0"	7/8"
14 to 18	20'-0"	1"

PVC (All Sizes)	4'-0"	3/8"

B. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.

C. Place a hanger within 12 inches of each horizontal elbow.

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

E. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.

F. All auxiliary steel required for pipe supports shall be furnished and installed by this Contractor. Where building structure is not usable for pipe supports, provide steel members, channels, angles, or "UNISTRUT" components for piping support. All auxiliary steel exposed to weather shall be galvanized.

G. Provide all steel required for support of pipes other than steel shown on structural Engineer's drawings.

3.03 EQUIPMENT BASES AND SUPPORTS

A. Provide equipment bases and supports of concrete type under all mechanical equipment and as shown on drawings.

B. Provide templates, anchor bolts, and accessories for mounting and anchoring equipment.

C. Construct support of steel members. Brace and fasten with flanges bolted to structure.

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

E. Refer to Section 15010, Paragraph 1.19, Foundations, Supports, Piers, Attachments, for additional requirements.

3.04 FLASHING

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

B. Flash vent and soil pipes projecting 3 inches minimum above finished roof surface with lead worked one inch minimum into hub, 8 inches minimum clear on sides with 24 x 24 inches sheet size. For pipes through outside walls, turn flanges back into wall and caulk, metal counterflash and seal.

C. Provide acoustical lead flashing around ducts and pipes penetrating equipment rooms, installed in accordance with Manufacturer's instructions for sound control.

- SECTION END -

SECTION 15190 - MECHANICAL IDENTIFICATION

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Identification of Mechanical Products Installed Under Division 15.

1.02 RELATED WORK

A. Section 15010.....Basic Mechanical Requirements.

B. Section 15260.....Piping Insulation.

C. Section 15280.....Equipment Insulation.

D. Section 15290.....Ductwork Insulation.

E. Section 15510.....Hydronic Piping.

F. Section 15515.....Hydronic Specialties.

G. Section 15855.....Air Handling Units with Coils.

H. Section 15975…..BAS Instrumentation And Control

1.03 REFERENCES

A. ANSI/ASME A13.1—Scheme for the Identification of Piping Systems.

1.04 SUBMITTALS

A. Submit product data under provisions of Section 15010 and Division 1.

B. Submit list of wording, symbols, letter size, and color coding for mechanical identification.

C. Submit valve chart and schedule, including valve tag number, location, function, and valve manufacturer's name and model number. Refer to Section 15010, Paragraph 1.14.

D. Submit manufacturer's installation instructions under provisions of Section 15010 and Division 1.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Brady.

B. Seton.

C. MSI.

2.02 MATERIALS

A. Color: Unless specified otherwise, conform with ANSI/ASME A13.1.

B. Metal Tags: 18 gauge brass with stamped letters; tag size minimum 1-1/2 inch diameter with smooth edges.

C. Plastic Tape Pipe Markers: Flexible, vinyl film tape with pressure sensitive adhesive backing and printed markings. Colors shall comply with ANSI A13.1. Size markers and letters as follows:

OUTSIDE DIAMETER OF INSULATION OR PIPE	LENGTH OF COLOR FIELD	SIZE OF LETTERS
¾" - 2"	1" x 8"	¾"
2½" - 6"	2¼" x 13"	1¾"
8" - 10"	4" x 24"	2½"
Over 10"	4" x 32"	3½"
Ductwork and Equipment	All	3½"

D. Plastic Flagging Tape: 1-3/16” wide, bright orange.

E. Plastic Equipment Markers (AHUs, EDHs, etc.) : 2" x 4", minimum 1/8" thick, corrosive and chemical resistant, black with white letters. Minimum size letter shall be 1/4". Air handler shall include quantity and sizes of filters required for a complete filter change. Fasten with stainless steel hardware.

F. Equipment Locator Tacks: 7/8" diameter color coded with push tack and writable surface.

G. Wire and cable markers (controls): Refer to Division 16, Section 16195.

PART 3 - EXECUTION

3.01 PREPARATION

A. Degrease and clean surfaces to receive adhesive for identification materials.

3.02 INSTALLATION

A. Metal Tags: Install with heavy brass hook or chain.

B. Plastic Tape Pipe Markers: Install complete around pipe in accordance with manufacturer's instructions.

C. Equipment: Identify air handling units with plastic equipment markers.

D. Controls: Identify control panels and major control components outside panels with plastic equipment tags.

E. Valves: Identify valves in main and branch piping with tags.

F. Piping: Identify piping, concealed or exposed, with plastic pipe markers. Tags may be used on small diameter piping. Identify service, flow direction, and pressure. Install in clear view and align with axis of piping. Locate identification not to exceed 20 feet on straight runs including risers and drops, adjacent to each valve and "T", at each side of penetration of structure or enclosure, and at each obstruction.

G. Ductwork: Identify ductwork with plastic equipment markers. Identify as to air handling unit number and service (supply air, return air, exhaust, outside air, etc.). Locate identification at air handling unit, at each side of penetration of structure or enclosure, and at each obstruction.

H. **Control Wiring**: Identify Star Center DDC controls communication wiring. **Provide identification/labels every twenty feet and one foot on each side of wall penetrations.** Cables shall be properly identified/tagged as to the control point.

3.03 VALVE CHART AND SCHEDULE

A. Provide valve chart and schedule in aluminum frame with clear plastic shield. Install at location as directed.

- SECTION END -

SECTION 15242 - VIBRATION ISOLATION

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Vibration Isolation.

1.02 RELATED WORK

A. Section 15010.....Basic Mechanical Requirements.

B. Section 15510.....Hydronic Piping.

C. Section 15855.....Air Handling Units with Coils.

1.03 REFERENCES

A. ASHRAE—Guide to Average Noise Criteria Curves.

1.04 QUALITY ASSURANCE

A. Maintain ASHRAE criteria for average noise criteria curves for all equipment at full load condition.

1.05 SUBMITTALS

A. Submit shop drawings and product data under provisions of Section 15010, General Conditions, and Supplementary General Conditions.

B. Indicate vibration isolator locations, with static and dynamic load on each, on shop drawings and described on product data.

C. Submit manufacturer's installation instructions under provisions of Section 15010, General Conditions, and Supplementary General Conditions.

1.06 CERTIFICATES

A. Submit manufacturer's certificate under provisions of General Conditions, and Supplementary General Conditions that isolators are properly installed and properly adjusted to meet or exceed specified requirements.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Amber Booth.

B. Mason Industries.

C. Vibration Eliminator Co.

D. AVNEC Incorporated.

E. Kevflex.

2.02 VIBRATION ISOLATORS

A. Amber Booth—Model numbers listed are included for identification. Refer to Paragraph 2.01 for additional manufacturers.

B. Type BSR—A combination spring and rubber hanger consisting of a rectangular steel box, coil spring, spring retainers, and elastomeric mounting designed for approximately 1/2" deflection.

C. Flanged, Type 2800—A flanged spherical rubber expansion joint constructed of molded neoprene, nylon cord reinforced, with integral steel floating flanges, suitable for pressure up to 225# (4 to 1 safety factor) and temperatures up to 225°F. Connectors shall have minimum movement capability of 1/2” compression, 3/8” extension 1/2” lateral and 15° angular. Where allowable movements will be exceeded or where operating pressures exceed the following, control rods shall be installed at each connector to limit elongation to 3/8”.

through 4”..... 200 psi
5” to 10”..... 150 psi
12” to 14”..... 100 psi
16” to 24”..... 50 psi

Control units shall be of the spring isolated design through 8” and neoprene isolated for 10” and larger to limit noise and vibration transmission through the control rods.

D. Type SP-NRE—A pad-type mounting consisting of two layers of 3/8" thick ribbed or waffled Neoprene pads bonded to a 16 gage galvanized steel separator plate. Pads shall be sized for approximately 20 to 40 psi load and a deflection of 0.12" to 0.16".

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install vibration isolators and flexible connectors for the following motor driven equipment.

1. Chilled Water Air Handling Units—Type SP-NRE.

B. Set steel bases for one inch clearance between housekeeping pad and base. Adjust equipment level.

C. Provide Spring Isolators on Piping Connected to Isolated Equipment as follows: Up to 4 inch diameter, first three points of support; 5 to 8 inch diameter, first four points of support; 10 inch diameter and over, first six points of support. Static deflection of first point shall be twice deflection of isolated equipment.

- SECTION END -

SECTION 15260 - PIPING INSULATION

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Piping Insulation.

B. Jackets and Accessories.

1.02 RELATED WORK

A. Section 15010.....Basic Mechanical Requirements.

B. Section 15140.....Supports and Anchors.

C. Section 15190.....Mechanical Identification.

D. Section 15400.....Testing of Piping Systems.

E. Section 15510.....Hydronic Piping.

F. Section 15515.....Hydronic Specialties.

G. Section 15855.....Air Handling Units with Coils.

1.03 REFERENCES

A. ASTM C552-79—Cellular Glass Block and Pipe Thermal Insulation.

B. ANSI/ASTM C195—Mineral Fiber Thermal Insulation Cement.

C. ANSI/ASTM C547—Mineral Fiber Preformed Pipe Insulation.

D. ASTM B209—Aluminum and Aluminum-alloy Sheet and Plate.

E. ASTM C449—Mineral Fiber Hydraulic-setting Thermal Insulating and Finishing Cement.

F. ASTM E84, NFPA 255 and UL 723—Surface Burning Characteristics of Building Materials.

G. ASTM C1136—Vapor Retarders for thermal insulation.

1.04 QUALITY ASSURANCE

A. Applicator: Company specializing in piping insulation application with three (3) years minimum experience.

B. Materials: Flame spread/smoke developed rating of 25/50 in accordance with ASTM E84, UL 723, and NFPA 255.

1.05 SUBMITTALS

A. Submit product data under provisions of Section 15010, General Conditions, and Supplementary General Conditions.

B. Include product description, list of materials and thickness for each service, and locations.

C. Submit manufacturer's installation instructions.

PART 2 - PRODUCTS

2.01 INSULATION

A. Type A:

1. Impermeable, noncombustible, closed cellular glass insulation, conforming to ASTM C 552-79, "Specification for Cellular Glass Block and Pipe Thermal Insulation."

2. Conductivity (k) equals approximately 0.29 (BTU-IN/HR, SF, degrees F) at 75 degrees F.

3. Joint sealants and coatings shall be as approved by the insulation manufacturer for the intended application and service temperature range.

4. Jacketing shall be approximately 125 mils thick, consisting of a bituminous resin reinforced with a woven, glass fabric, an integral aluminum foil layer, and a protective plastic film coating.

5. Approved Manufacturers and trade names:

   a. Pittsburgh Corning Corp. "Foamglass Super K" with Pittseal, Pittcote, and Pittwrap.

   b. Approved Equal.

2.02 JACKET

A. Interior Applications:

1. Vapor Barrier (ASJ) Jackets: Kraft reinforced foil vapor barrier with double self-sealing adhesive joints.

2. Vapor Barrier (ASJ) Jackets: Metalized polyester film, reinforcing scrim, flame-retardant adhesive, and bleached paper with SSL. Butt

strip tape coated with high performance, pressure sensitive, flame retardant adhesive.

B. Exterior Applications: (Exterior and other exposed areas such as equipment/ mechanical rooms)

1. Aluminum Jackets: ASTM B209; 0.016 inch thick; smooth finish with factory applied integral moisture barrier.

2. Aluminum Fitting Covers: Childers 2 or 4 piece ELL-JACS elbow covers, Gore ELL-JACS elbow covers and 2-piece TEE-JACS tee covers; ASTM B209; 0.024 inch thick; smooth finish.

2.03 ACCESSORIES

A. Insulation Bands: 3/8 inch wide; 0.020 inch thick aluminum.

B. Metal Jacket Bands: 1/2 inch wide; 0.020 inch thick aluminum.

C. Insulation Bonding Adhesive (to metal)

1. Benjamin Foster 85-15.
2. Childers Chil-Stix CP-85.

D. Insulating and Finishing Cement

1. Armco Corp.
2. Rockwool Corp.
3. Manville Corp.

E. Vapor Barrier Lap Adhesive

1. Benjamin Foster 82-07.
2. Childers Chil-Stix CP-85.

F. Vapor Barrier Mastic

1. Benjamin Foster 30-35.
2. Childers CP-30 Low Odor (for indoor use).
3. Childers Chil-Pruf CP-22/23/24 (for outdoor use).

G. Lagging Adhesive

1. Benjamin Foster 30-36.
2. Childers Chil-Rene CP-96.

H. Glass Cloth Jacket

1. Benjamin Foster.
2. Childers Chil-Glas #10.

I. PVC Fittings Covers

1. Certain-Teed "Snap Form."
2. Manville Corp. "Zeston."
3. Approved Equal.

PART 3 - EXECUTION

3.01 PREPARATION

A. Install materials after piping has been tested, cleaned, and approved, as required by Section 15400.

B. All surfaces to be insulated shall be dry and free of loose scale, rust, dirt, oil or water.

3.02 APPLICATION

A. Insulation shall be installed in a smooth, clean, workmanlike manner. Joints shall be tight and finished smooth without fishmouths.

B. Insulation shall fit tightly against the surface to which it is applied to prevent air circulation between the insulation and the pipe or equipment to which it is applied.

C. Insulation applied to cold piping or equipment shall be completely vapor sealed, free of pin holes or other openings.

D. Do not use wet insulation materials.

E. All longitudinal joints on vertical pipe runs shall be staggered.

F. Apply insulation so as to permit expansion or contraction of pipe lines without causing damage to insulation or surface finish.

G. Do not apply mastic or adhesive until all previous application of mastic and adhesives have thoroughly dried.

H. The adhesive used in connection with all covering work shall contain an approved vermin and rodent-proof ingredient.

3.03 INSTALLATION

A. Install materials in accordance with manufacturer's instructions.

3.04 TYPE A INSULATION INSTALLATION

A. Interior

1. Butter joints of Foamglass insulation with Pittseal 444 or Childers CP-76. Apply insulation to pipe and fittings with all joints tightly fitted. Secure with stainless steel wire so that each length of insulation shall be secured with two wires. Insulation shall be applied with all joints fitted to eliminate voids. Voids shall be eliminated by refitting or replacing insulation. Do not fill voids with joint sealer.

2. Finish with metalized polyester/scrim/bleached white Kraft or approved foil/scrim/bleached white Kraft, all service jacket (ASJ). Finish elbows and fittings with Pittcote 404 or Childers CP-30 Low Odor reinforced with white open weave membrane with maximum mesh opening of 10 x 10 per inch.

B. Exterior and Mechanical Equipment/Storage Rooms

1. Apply insulation as noted above (paragraph 3.04 A.1) and apply vapor barrier with Pittcote 404 or Childers CP-30 Low Odor reinforced with white open weave membrane with maximum mesh opening of 10 x 10 per inch. Then apply a second coat of Pittcote 404 or Childers CP-30 Low Odor and finish with .016 inch thick aluminum jacket. Elbows and tees shall be finished with preformed 0.024 inch thick aluminum fitting covers with seams facing down and properly closed for sealing.

3.05 HANGERS

A. Continue insulation through pipe hangers. Provide either rigid insulation inserts or sheet metal inserts at all outside pipe hangers. Provide rigid insulation inserts for piping operating below 60 degrees F and sheet metal inserts for piping above 60 degrees F.

B. Rigid insulation or wood inserts between the pipe and pipe hanger shall be of a thickness equal to the adjoining insulation and shall be provided with vapor barrier where required. Insulation insert shall not be less than the following lengths:

1/2" to 2-1/2" pipe size ..... 10" Long

3" to 6" pipe size ..... 12" Long

8" to 10 pipe size..... 16" Long

12" and Over..... 22" Long

C. Inserts for cold piping shall have a vapor barrier facing of the same material as the adjacent pipe insulation. Seal inserts into insulation with vapor seal mastic.

D. Where insulation is a load bearing material of sufficient strength to support the weight of the piping, pipe shields one-third the circumference of the insulation and of a length not less than three times the diameter of the insulation (maximum length 24") shall be provided. An all service jacket shall be applied between shields and insulation. Follow insulation

manufacturer's recommendations for use of pipe insulation in conjunction with outside installed hangers.

E. Where insulation is not of sufficient strength to support the weight of the piping, a saddle, or section of calcium silicate insulation such as "Kaylo" shall be provided. Vapor barrier and finish shall be applied as required to match adjoining insulation. In addition, shields shall be furnished as specified above.

3.06 INSULATION SCHEDULE (ABOVE GRADE PIPING)

A.

SERVICE	PIPE SIZE	INSULATION TYPE AND THICKNESS
Exterior Chilled Water (including unconditioned spaces and mechanical equipment rooms)	All	2-1/2" Type A
Interior Chilled Water	2" or Less	1-1/2" Type A
Interior Chilled Water	2-1/2" or More	2" Type A

- SECTION END -

SECTION 15280 - EQUIPMENT INSULATION

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Equipment Insulation.

B. Covering.

1.02 RELATED WORK

A. Section 15010.....Basic Mechanical Requirements.

B. Section 15190.....Mechanical Identification.

C. Section 15260.....Piping Insulation.

D. Section 15400.....Testing of Piping Systems.

E. Section 15515.....Hydronic Specialties.

F. Section 15855.....Air Handling Units with Coils.

1.03 REFERENCES

A. ANSI/ASTM C552—Cellular Glass Block and Pipe Thermal Insulation.

B. Elastomeric Foam Insulation.

C. ASTM E84—Surface Burning Characteristics of Building Materials.

D. NFPA 255—Surface Burning Characteristics of Building Materials.

E. UL 723—Surface Burning Characteristics of Building Materials.

1.04 QUALITY ASSURANCE

A. Applicator: Company specializing in insulation application with three years minimum experience.

B. Insulation and Covering: Flame spread/smoke developed rating of 25/50 in accordance with ASTM E84. UL 723.

1.05 SUBMITTALS

A. Submit product data under provisions of Section 15010, General Conditions, and Supplementary General Conditions.

B. Include product description, list of materials and thickness for equipment scheduled.

C. Submit manufacturer's installation instructions under provisions of these specifications.

1.06 ENVIRONMENTAL REQUIREMENTS

A. Maintain ambient temperatures and conditions required by manufacturers of adhesive and insulation

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Pittsburg Corning (Type A).

B. Rubatex (Type B).

C. Armstrong Armaflex (Type B).

2.02 INSULATION

A. Type A: Cellular glass; ANSI/ASTM C552; 'k' value of 0.29 at 75 degrees F; 8.5 lb/cu ft density. ASTM 84 flamespread.

B. Type B: Elastomeric foam insulation; 'k' value of 0.27 at 75 degrees F. ASTM 84 flamespread: less than 25; smoke developed: less than 50.

2.03 ACCESSORIES

A. Bedding Compounds: Non-shrinking, permanently flexible, compatible with insulation.

B. Vapor Barrier Coating: Non-flammable, fire resistant, polymeric resin, compatible with insulation.

C. Insulating Cement: ANSI/ASTM C195, hydraulic setting mineral wool.

D. Wire Mesh: Corrosive-resistant metal; hexagonal pattern.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Refer to Section 15260, Paragraph 3.04, for additional instructions.

B. Install materials in accordance with manufacturer's instructions.

C. Do not insulate factory insulated equipment.

D. Apply insulation as close as possible to equipment by grooving, scoring, and beveling insulation, if necessary. Secure insulation to equipment with stainless steel wires or bands.

E. Fill joints, cracks, seams, and depressions with bedding compound to form smooth surface. On cold equipment, use vapor barrier cement.

F. Cover insulation with metal mesh and finish with heavy coat of insulating cement.

G. Do not insulate over nameplate or ASME stamps. Bevel and seal insulation around such.

H. When equipment with insulation requires periodical opening for maintenance, repair, or cleaning, install insulation in such a manner that it can be easily removed and replaced without damage. Refer to detail on drawings for pump insulation requirements.

I. Flat or irregular equipment insulation shall be cut to fit the shape and contour of the equipment. All voids between equipment surface and insulation shall be packed with light density fiberglass.

3.02 SCHEDULE

A. Valve Bodies — Type 'A'—2" thick.

B. All Equipment Operating Below Ambient Dew Point—Type 'A'—2" thick.

- SECTION END -

SECTION 15290 - DUCTWORK INSULATION

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Ductwork Insulation.

1.02 RELATED WORK

A. Section 15010.....Basic Mechanical Requirements.

B. Section 15190.....Mechanical Identification.

C. Section 15855.....Air Handling Units with Coils.

D. Section 15890.....Ductwork.

E. Section 15910.....Ductwork Accessories.

1.03 REFERENCES

A. ANSI/ASTM C553—Mineral Fiber Blanket and Felt Insulation.

B. ANSI/ASTM C612—Mineral Fiber Block and Board Thermal Insulation.

1.04 QUALITY ASSURANCE

A. Applicator: Company specializing in ductwork insulation application with two years minimum experience.

B. Materials: UL listed; flame spread/smoke developed rating of 25/50 in accordance with NFPA 90A.

1.05 SUBMITTALS

A. Submit product data under provisions of Section 15010, General Conditions, and Supplementary General Conditions.

B. Include product description, list of materials and thickness for each service, and locations.

C. Submit manufacturer's installation instructions.

D. Submit product description and manufacturer's instructions for all adhesives, mechanical fasteners, joint tape, etc., prior to starting work.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Knauf Fiberglass.

B. Owens Corning Fiberglass.

C. Mansville.

2.02 MATERIALS

A. Type A: Flexible glass fiber; ANSI/ASTM C553; commercial grade; 6.0 installed ‘R' value (minimum) at 75 degrees F, 0.002 foil scrim facing for air conditioning ducts (nominally 2" thick).

B. Adhesives: Waterproof fire-retardant type and conform to adhesive and sealant council standards; ASC-A7001A-1971.

C. Lagging Adhesive: Fire resistive to ASTM E84, NFPA 255, UL 723.

D. Mechanical Fasteners: Galvanized steel, 12 gage, self- adhesive pad. Fasteners shall conform to mechanical fastener standard MF-1-1971 (available from SMACNA).

E. Joint Tape: Glass fiber cloth, open mesh.

F. Tie Wire: Annealed steel, 16 gage.

PART 3 - EXECUTION

3.01 PREPARATION

A. Install materials after ductwork has been tested and approved.

B. Clean surfaces for adhesives.

C. Extend shafts for handles on equipment/devices which are insulated so that insulation is applied at the intended thickness (not compressed). Insulation shall be installed in a manner to eliminate sweating on handles and shafts. Handles shall remain accessible, visible, and operable.

3.02 INSTALLATION

A. Type A

1. Apply insulation tightly and smoothly to duct.

2. Secure insulation on the bottom of ducts and plenums and on the sides of plenums and other places where the insulation will sag.

3. Install all materials in accordance with Manufacturer's installation instructions.

4. Butt all insulation joints firmly.

5. Install duct wrap to obtain specified ‘R' value using a maximum of 25% compression.

6. All penetrations and damage to the facing shall be repaired with tape and mastic prior to system start-up.

7. Provide 3" wide (minimum) pressure sensitive tape applied with moving pressure using an appropriate sealing tool at all seams and joints. Apply vapor seal mastic over all taped seams and joints.

8. Longitudinal seam of the vapor retarder shall be overlapped a minimum of 2 inches. A 2 inch tab shall be provided for the circumferential seam.

9. Closure systems shall have a 25/50 flame spread/smoke developed rating per UL 723.

10. For rectangular ducts over 18 inches wide, the duct wrap shall be secured to the bottom side of the duct with mechanical fasteners spaced on 18 inch centers to reduce sag. Fasteners shall be installed in a manner to avoid over compressing the insulation with the retaining washer.

11. Impale insulation on the bottom of ducts and plenums and on the sides of plenums and other places where the insulation will sag.

12. Cut off protruding pin after clips are secured and seal with aluminum backed pressure sensitive tape.

13. Apply insulation with joints tightly butted.

14. Seal all ductwork joints, punctures, and fittings with a mastic type sealant containing a vapor barrier.

15. Cover all breaks, joints, punctures, and voids with a vapor seal mastic and cover with a vapor barrier material identical to vapor barrier on the insulation.

16. Bevel insulation around nameplates, access plates, and doors.

17. Insulation shall be continuous through walls and floors except at fire dampers.

B. Install all materials in accordance with Manufacturer's installation.

C. Continue insulation with vapor barrier through penetrations.

3.03 SCHEDULE

A. Supply and Return Ductwork—Type A (nominally 2" thick).

B. Flex Connections at Air Handling Units and Other Transitions—Type A (nominally 2" thick).

C. All Equipment and Ductwork Operating Below Ambient Dew Point—Type A (nominally 2" thick).

- SECTION END -

SECTION 15400 - TESTING OF PIPING SYSTEMS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Hydronic Piping.

1.02 RELATED WORK

A. Section 15010.....Basic Mechanical Requirements.

B. Section 15260.....Piping Insulation.

C. Section 15510.....Hydronic Piping.

D. Section 15515.....Hydronic Specialties.

PART 2 - PRODUCTS

(NOT APPLICABLE)

PART 3 - EXECUTION

3.01 INSTALLATION

A. Furnish all labor, materials, and equipment required for testing procedures.

B. Insulation shall not be applied until pressure testing has been completed. Joints of any type shall not be painted or varnished prior to testing.

C. Lines containing check valves shall have the test pressure source located upstream of the valves, or the valve discs shall be removed until after the testing. Control valves shall be set in the open position, unless directed otherwise.

D. Pipe testing shall be performed after flushing, except for buried lines.

E. Any equipment that has a pressure rating not as high as the testing pressure shall be valved off during the test.

F. The tabulated results of all tests shall be submitted to the Engineer.

G. Piping Systems: Test all pipe lines installed with a water pressure test of 1-1/2 times it's operating pressure, but not less than 100 psi for a period of 4 hours, during which time the pressure shall remain constant without pumping. If leaks or defects develop, new tests shall be made and repeated until all defects are remedied. Pipes or joints which leak shall be taken apart and remade. Caulking will not be permitted. Pipes which will be concealed

may be tested separately before the distribution system is installed in order that these lines may be covered and furred in and thus, not delay the work of other trades.

- SECTION END -

SECTION 15510 - HYDRONIC PIPING

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Pipe and Pipe Fittings.

B. Valves.

C. Chilled Water Piping System.

1.02 RELATED WORK

A. Section 15010.....Basic Mechanical Requirements.

B. Section 15140.....Supports and Anchors.

C. Section 15190.....Mechanical Identification.

D. Section 15260.....Piping Insulation.

E. Section 15280.....Equipment Insulation.

F. Section 15400.....Testing of Piping Systems.

G. Section 15515.....Hydronic Specialties.

H. Section 15975.....Building Management and Automatic Temperature Control System.

1.03 REFERENCES

A. ANSI/ASME—Boiler and Pressure Vessel Code.

B. ANSI/ASME Sec 9—Welding and Brazing Qualifications.

C. ANSI/ASME B16.3—Malleable Iron Threaded Fittings Class 150 and 300.

D. ANSI/ASME B31.9—Building Services Piping.

E. ANSI/AWS A5.8—Brazing Filler Metal.

F. ANSI/AWS D1.1—Structural Welding Code.

G. ASTM A53—Pipe, Steel, Black and Hot-Dipped Zinc Coated, Welded and Seamless.

H. ASTM A120—Pipe, Steel, Black and Hot-Dipped Zinc Coated (Galvanized), Welded and Seamless, for Ordinary Uses.

I. ASTM A234—Pipe Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and Elevated Temperatures.

J. ASTM B32—Solder Metal.

K. ASTM B88—Seamless Copper Water Tube.

L. ANSI/AWWA C504—Rubber Sealed Butterfly Valves.

1.04 REGULATORY REQUIREMENTS

A. Conform to ANSI/ASME B31.9, latest revision.

B. Conform to ANSI/AWWA C504, latest revision (below ground).

1.05 QUALITY ASSURANCE

A. Valves: Manufacturer's name and pressure rating marked on valve body.

B. Welders shall be certified per ASME SEC 9 and AWS D1.1.

1.06 SUBMITTALS

A. Submit product data under provisions of Section 15010 and Supplementary General Conditions.

B. Include data on pipe materials, pipe fittings, valves, and accessories.

C. Provide certifications for each welder.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site under provisions of Section 15010, General Conditions, and Supplementary General Conditions.

B. Store and protect products under provisions of Section 15010, General Conditions, and Supplementary General Conditions.

C. Deliver and store valves in shipping containers with labeling in place.

PART 2 - PRODUCTS

2.01 MATERIALS—PIPE ABOVE GRADE

A. Chilled water:

	SIZES (INCHES)	MATERIALS
Pipe	2-1/2" and Larger	Carbon steel, butt weld, Schedule 40
Pipe	2" and Smaller	Type L, Hard Temper Copper Tubing
Fittings	Lines 2-1/2" and Larger	Carbon steel, butt weld, Schedule 40
Fittings	2" and Smaller	Wrought copper sweat or ProPress (preferred)
Unions	2" and Smaller	Brass
Flanges	2-1/2" and Larger	Carbon steel, slip on, raised face, 150 lbs. and 250 lbs.
Gaskets		"Graphoil", full face, 1/16", Union Carbide, or approved equal
Air Conditioning Condensate Drain		Type L, Hard Temper Copper Tubing

2.02 ACCEPTABLE MANUFACTURERS—VALVES

A. Stockham, Grinnell, Nibco, Milwaukee, and Mueller (unless noted otherwise).

B. Substitutions: Under provisions of Section 15010, General Conditions, and Supplementary General Conditions.

2.03 BALL VALVES

A. Up to 2 Inches: Bronze two piece body, stainless steel ball, Teflon seats and stuffing box ring, lever handle, and balancing stops, solder ends. Provide extended handle shaft as necessary for installed thickness of insulation so that handle operates freely outside the insulation and jacket.

2.04 BUTTERFLY VALVES LOCATED ABOVE GROUND

A. 2-1/2" through 4": 150 psi SWP iron body; butterfly valve; EPDM seat with phenolic resin hard backing; to have range of 300ºF; bronze disc; lug type; 416 stainless steel stem; luberized bronze reinforced Teflon bushing; infinite throttling handle with memory stop; suitable for dead-end service.

B. 5" through 10": 150 psi SWP iron body; butterfly valve; EPDM seat with phenolic resin hard backing; to have range of 300ºF; bronze disc; lug type; 304 stainless steel stem; luberized bronze reinforced Teflon bushing; series DG worm screw operator with handwheel suitable for deadend service.

C. Valves installed over 7'-0" above finished floor shall be provided with a chain wheel.

D. Gear operators exposed to weather shall have weatherproof cover.

E. Provide extended handle shaft as necessary for installed thickness of insulation so that handle operates freely outside the insulation and jacket.

2.05 CHECK VALVES

A. Up to 2 Inches: Bronze 45 degree swing disc, solder ends. 2-1/2" and Larger: Iron body, flanged ends (horizontal piping).

B. 2-1/2" and Larger: iron body, bronze disc, stainless steel stem, stainless steel springs, Buna-N seat with 250ºF range, lug type valves.

PART 3 - EXECUTION

3.01 PREPARATION

A. Ream pipe and tube ends. Remove burrs.

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

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

D. After completion, fill, clean, and treat systems.

3.02 INSTALLATION

A. Ream pipe and tube ends. Remove burrs.

B. Route piping in orderly manner, plumb and parallel to building structure, and maintain gradient.

C. Install piping to conserve building space, and not interfere with use of space and other work.

D. Group piping whenever practical at common elevations.

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

F. Provide clearance for installation of insulation, and access to valves and fittings.

G. Install valves where they are easily accessible.

H. Slope piping and arrange systems to drain at low points. Use eccentric reducers to maintain top of pipe level.

I. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding.

J. Prepare pipe, fittings, supports, and accessories for finish painting.

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

L. Use dielectric unions of flanges between ferrous and non-ferrous metals to prevent corrosion reaction. Use insulated bolts on flanges.

M. All welds shall be properly prepared and painted to prevent oxidation prior to applying insulation or other protective covering. All exposed uninsulated piping shall be painted completely. Refer to Section 15010.

3.03 APPLICATION

A. Install flanges/unions downstream of valves and at equipment or apparatus connections.

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

C. Install gate or ball or butterfly valves for shut-off and to isolate equipment, part of systems, or vertical risers. (Above grade)

D. Provide manual air vents at the high point of piping and where indicated on drawings.

E. Provide 3/4 inch gate or ball drain valves at main shut-off valves, low points of piping, bases of vertical risers, and at equipment.

F. Cleaning of piping systems.

1. Conform to applicable codes for addition of non-potable chemicals to building mechanical systems, and for delivery to public sewage systems.

2. System Cleaner

a. Liquid alkaline compound with emulsifying agents and detergents to remove grease and petroleum products.

b. Algaecide; chlorine release agents such as sodium hypochlorite or calcium hypochlorite, or microbiocides such as quarternary ammonia compounds, tributyl tin oxide, methylene bis, or isothiazolones.

3. Preparation

a. Systems shall be operational, filled, started, and vented prior to cleaning.

b. Place terminal control valves in open position during cleaning.

4. Cleaning Sequence

   a. Add cleaner to closed systems at concentration as recommended by manufacturer of water contained in the system; of one pound per 100 gallons of water for hot systems and one pound per 50 gallons of water for cold systems.

   b. Hydronic Water Systems: Contractor shall rent a pump with strainer and pipe to new system. Contractor shall circulate for 48 hours, then drain systems as quickly as possible. Refill with clean water, circulate for 24 hours, then drain. Refill with clean water and repeat until system cleaner is removed. After cleaning and flushing, the Contractor shall connect new piping to existing system as shown on drawings.

   c. Use neutralizer agents on recommendation of system cleaner supplier and approval of Engineer.

   d. Flush open systems with clean water for one hour minimum. Drain completely and refill.

   e. Remove, clean, and replace strainer screens.

   f. Inspect, remove sludge, and flush low points with clean water after cleaning process is completed. Include disassembly of components as required.

- SECTION END -

SECTION 15515 - HYDRONIC SPECIALTIES

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Air Vents.

B. Strainers.

C. P/T Plugs.

D. Balancing Devices.

E. Relief Valves.

F. Thermometers.

G. Pressure Gauges.

1.02 RELATED WORK

A. Section 15010.....Basic Mechanical Requirements.

B. Section 15260.....Piping Insulation.

C. Section 15280.....Equipment Insulation.

D. Section 15400.....Testing of Piping Systems.

E. Section 15510.....Hydronic Piping.

1.03 QUALITY ASSURANCE

A. Manufacturer: For each product specified, provide components by same manufacturer throughout.

1.04 SUBMITTALS

A. Submit shop drawings and product data under provisions of Section 15010, General Conditions, and Supplementary General Conditions.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site under provisions of General Conditions and Supplementary General Conditions.

B. Store and protect products under provisions of Section 15010, General Conditions, and Supplementary General Conditions.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS—AIR VENTS

A. Amtrol.

B. Armstrong.

C. TACO.

D. Keckley

2.02 AIR VENTS

A. Manual Type: Short vertical sections of pipe to form air chamber, with 1/8 inch brass needle valve at top of chamber. Vertical Section of pipe shall be same diameter as pipe served up to 1-1/2", larger pipes shall have a minimum of 2" in diameter.

B. Automatic Type: Air vent shall have a pilot operated elimination mechanism, 1/4" orifice and have a self cleaning mechanism. Air vent shall be Model No. 720, as manufactured by Amtrol.

2.03 ACCEPTABLE MANUFACTURERS—STRAINERS

A. Spirax/Sarco.

B. Mueller.

C. Watts Regulator.

D. Titan.

2.04 STRAINERS

A. Strainers for pipe sizes 2" and smaller, shall be Sarco, Type BT, screwed and sizes 2-1/2" and larger shall be Type AF-125 flanged. Type BT strainers shall have screens having 0.033" openings, and Type AF-125 strainers shall be furnished with monel screens. Provide strainers to protect all automatic controls, valves, and pumps not equipped with integral strainers. Provide a disposable fine mesh start-up screen which shall be removed after thirty (30) days of operation.

B. Strainer shall be sized for a maximum of 2 psi pressure drop.

2.05 RELIEF VALVES

A. Bronze body, Teflon seat, stainless steel stem and springs, automatic, direct pressure actuated, capacities ASME certified and labeled.

2.06 CALIBRATED BALANCING VALVES

A. CBV-T (½" through 2" NPT threaded type):

- Furnish and install, as shown on plans and with manufacturer's recommendations, Model CBV-T threaded type circuit balancing valves.
- Each valve shall have metering ports incorporating Nordel check valves on both sides of the seat.
- All valves shall be "Y" pattern, equal percentage, globe style, designed either for presetting with a balance schedule or for proportional balancing. All metal parts are bronze copper alloy. Each valve shall provide four functions:
  - precise flow measurement;
  - precision flow balancing;
  - positive shutoff with a no-drip soft seat; and
  - diagnostic point for system analysis.
- A ¼" NPT tapped drain port shall be provided on each side of valve seat.
- Valves shall have four (4) full 360 degree adjustment turns of the handwheel (1,440 degrees) with a micrometer-type indicator and hidden memory feature to program the valve for a precise, tamper-proof, balanced setting. When installed, the handwheel and metering ports shall not be located on the bottom of the valve to prevent sediment deposits. Handwheel scale must be able to be positioned so that it may be clearly read without the use of mirrors or any special tools. Metering ports shall be interchangeable with drain ports to allow for read-out flexibility when installed in tight piping locations.
- Each threaded CBV-T to be shipped with a pre-formed insulation to meet or exceed ASTM D1784/Class 14253-C, MEA #7-87, ASTM E84, and ASTM E136 with a flame spread rating of 25 or less and a smoke development rating of 50 or less.

B. CBV-G 2½" through 12" Grooved/Flanged:

- Furnish and install, as shown on plans and with manufacturer's recommendations, Circuit Balancing Valves.

- The valve body shall be ductile iron with grooved ends or with Armgrip(tm) non-rotating ductile iron flange adapters. Valves shall be suitable for the working pressures and temperatures as shown on drawings.

- Each valve shall have metering ports incorporating Nordel check valves, on both sides of the seat.

- All valves shall be "Y" pattern, modified equal percentage, globe style, designed either for presetting with a balance schedule or for proportional balancing. Each valve shall perform four functions:
  - precise flow measurement
  - precision flow balancing
  - positive shutoff with a no-drip soft seat; and
  - diagnostic point for system analysis.

- Valves shall have five, (2½" and 3") six, (4" through 6") twelve, (8") ten, (10") or fourteen (12") full 360 degree adjustment turns of the handwheel with a micrometer-type indicator and hidden memory feature to program the valve for a precise, tamper-proof balanced setting. When installed, the handwheel and metering ports shall not be located on the bottom of the valve to prevent sediment deposits. Handwheel scale must be able to be positioned so that it may clearly read without the use of mirrors or any special tools.

- Circuit balancing valves shall be installed at least five pipe diameters downstream from any fitting and at least ten pipe diameters downstream from any pump. Two pipe diameters downstream of the CBV shall be free of any fitting.

- The valve shall be furnished with pre-formed insulation to meet or exceed ASTM D1784/Class 14253-C, MEA #7-87, ASTM E84, and ASTM E136 with a flame spread rating of 25 or less and a smoke development rating of 50 or less.

C. Acceptable manufacturers shall be Armstrong, Tour & Andersson, or Mepco.

D. Provide an Armstrong, Model CBVM-135/60 or equal, meter kit. Kit shall have two (2) meter, 5 foot hose each, and shall have a range of 0'-60'.

2.07 THERMOMETERS

A. Provide thermometers where indicated, specified, and required. They shall be installed so that they can be clearly read from the floor.

B. Industrial stem thermometers shall have a scale not less than 9" long and shall be red-reading mercury type with white background and black etched graduations and numerals. Casing materials shall be aluminum on all products installed outdoors.

C. Thermometers shall be suitable for the service intended and the range shall be selected to span from approximately 10 degrees below through 10 degrees above the operating range of the fluid.

D. Thermometers shall have a guaranteed accuracy of within 1% of the range scale and shall be provided with 1 degree graduations. Thermometers shall be provided with brass separable socket wells.

E. Provide thermometer wells and necessary fittings where specified or indicated. Wells installed in insulated piping shall be provided with lagging extensions of appropriate length to accommodate insulation.

F. Thermometers shall be as manufactured by Marsh Instrument Co., Weksler Instrumentation, Trerice, Miljoco, or approved equal.

2.08 PRESSURE GAUGES

A. Pressure and compound pressure gauges shall be installed so that they can be clearly read from the floor and shall be Bronze Bourdon tube type with minimum 6" dials and snubbers. Dials shall be white with black numerals, graduations, and pointers, and shall be set in either iron, steel, or aluminum cases having a baked enamel finish. Cases shall have safety blowout plugs.

B. Pressure gauges shall have a range of approximately twice the operating pressure and all gauges shall have an accuracy of 1/2 of 1% of full scale reading. Gauges shall be provided with brass shutoff cocks.

C. Provide compound pressure gauges in pump suction pipe (30" Hg VAC. to 100 psi).

D. Provide gauges where indicated, specified, or required.

E. Gauges shall be manufactured by Marshalltown Instrument, Weksler Instrumentation, Trerice, Miljoco, or approved equal.

2.09 P/T PLUGS

A. Provide, in locations shown on drawings, a 1/2 inch MPT fitting for pipe line and 1/4 inch for valve body locations to receive either a temperature or pressure probe 1/8 inch OD. Fitting shall be solid brass with two valve cores of Neoprene capable of withstanding a maximum temperature of 200 deg. F at 500 psi, fitted with a color coded and marked cap with gasket, and shall be rated at 1000 psig at 140 deg. F.

B. Provide Owner with pressure gauge adapters with 1/8" O.D. probe and 5 inch testing thermometers for chilled water with a 25 - 125 F range.

C. Supply and present to the Owner upon completion of testing, two (2) pressure and temperature test kits. Each shall consist of one dual scale (0-100 psi, 0-230 feet of water) pressure gauge with a No. 500 gauge adapter attached, one 25-125 F pocket testing thermometer, one 0-220 F pocket

testing thermometer, one 500 gauge adapter, and one protective carrying case.

D. Acceptable manufacturers shall be Peterson, Sisco, or approved equal.

PART 3 - EXECUTION

3.01 INSTALLATION AND APPLICATION

A. Install specialties in accordance with manufacturer's instructions to permit intended performance.

B. Where large air quantities can accumulate, provide enlarged air collection standpipes.

C. Provide manual air vents at system high points and as indicated.

D. Provide valved drain and hose connection on strainer blow down connection.

E. Flow switches, temperature sensors, sensor sockets, wells gage taps, etc. shall be furnished under controls section of these specifications and installed under this Section. Locations of all sensor sockets, flow switches, and taps shall be coordinated with and supervised by the Controls Contractor.

F. Motorized control valves shall be furnished by the Controls Contractor, installed by the Mechanical Contractor.

- SECTION END -

SECTION 15790

ELECTRIC DUCT HEATERS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Electric Duct Heaters.

1.02 RELATED WORK

A. Section 15010.....Basic Mechanical Requirements.

B. Section 15890.....Ductwork.

C. Section 15910.....Ductwork Accessories.

D. Section 15975.....Building Management and Automatic Temperature Control System.

E. Division 16 .....Electrical.

1.03 REFERENCES

A. ANSI/ARI 410—Forced-Circulation Air-Cooling and Air- Heating Coils.

B. ANSI/NFPA 70—National Electrical Code.

C. ANSI/UL 1096—Electric Central Air Heating Equipment.

D. SMACNA—Metal Duct Standards.

E. Ducted Electric Heat Guide for Air Handling Systems, SMACNA, Inc.

1.04 QUALITY ASSURANCE

A. Fabrication: Conform to applicable standards.

B. Air Coils: Certify capacities, pressure drops, and selection procedures in accordance with ARI 410.

1.05 SUBMITTALS

A. Submit shop drawings and product data under provisions of Section 15010 and Division 1.

B. Shop drawings shall indicate assembly, unit dimensions, weight loading, required clearances, construction details, and field connection details.

C. Product data shall indicate dimensions, weights, capacities, ratings, and gages and finishes of materials.

D. Submit manufacturer's installation instructions under provisions of Division 1.

1.06 OPERATION AND MAINTENANCE DATA

A. Submit operation and maintenance data under provisions of Division 1.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site under provisions of Division 1 in factory-fabricated protective containers, with factory-installed shipping skids and lifting lugs.

B. Store and protect products under provisions of Division 1.

C. Store in clean dry place and protect from weather and construction traffic. Handle carefully to avoid damage to components, enclosures, and finish.

1.08 ENVIRONMENTAL REQUIREMENTS

A. Do not operate units for any purpose, temporary or permanent, until ductwork is clean and controls have been tested.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Indeeco.

B. Markel.

C. Warren.

2.02 GENERAL

A. The Contractor shall furnish and install the duct mounted electric heaters as shown and scheduled on the plans. The electric duct heaters shall be installed in strict accordance with the specifications. Unit shall be complete with controls, wiring, fuses, safety devices, control panels, thermostats, etc., as required for a complete and operating system.

2.03 ELECTRIC DUCT HEATERS

A. Heaters and panelboards shall meet the requirements of the National Electrical Code and shall be listed by Underwriter's Laboratories for zero clearance to combustible surfaces and for use with heat pumps and air conditioning equipment.

B. Heating elements shall be open coil, 80% nickel, 20% chromium, type A resistance wire. Type C alloys containing iron or other alloys are not acceptable. Coils shall be machine crimped into stainless steel terminals extending at least 1" into the airstream and all terminal hardware shall be stainless steel. Coils shall be supported by ceramic bushings staked into aluminized steel supporting brackets.

C. Heater frames and terminal boxes shall be aluminized steel. Unless otherwise indicated, the terminal box shall be NEMA 1 construction and shall be provided with a hinged, latching cover and multiple concentric knockouts for field wiring.

D. All heaters shall be furnished with a disc type, automatic reset thermal cutout for primary overtemperature protection. All heaters shall also be furnished with disc type, load carrying manual reset thermal cutouts, factory wired in series with heaters stages for secondary protection. Heat limiters or other fusible overtemperature devices are not acceptable.

E. Heaters shall be rated for the voltage, phase and number of heating stages indicated in the schedule. All three phase heaters shall have equal, balanced, three phase stages. All internal wiring shall be stranded copper with 105°C insulation and shall be terminated in crimped connectors or box lugs.

F. Terminal blocks shall be provided for all field wiring and shall be sized for installation of 75°C copper wire rated in accordance with NEC requirements.

G. Heaters shall be furnished with the Control Option specified below which is most suitable for the control methods of the controller and as coordinated with the Controls Contractor.

H. Provide thermal cutouts, airflow switch, contactors, fuses, control circuit transformer and built-in, snap-acting, door interlock disconnect switch.

I. Provide thermal cutouts, airflow switch, SOLITECH SCRs, fuses, control circuit transformer and built-in, snap-acting, door interlocked disconnect switch.

J. Provide heaters with insulated dust tight terminal box.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions and in conformance with ARI and the SMACNA Ducted Electric Heat Guide for Air Handling Systems.

B. Provide for connection to electrical service.

C. Provide all clearances for maintenance and service as required by NEC and the manufacturer's installation instructions.

D. Contractor shall remote mount the control panel as required by the field conditions. Coordination of control panel locations shall be completed prior to shop drawing/ submittal phase with all other trades to account for panel type prior to ordering equipment.

E. Support coil sections independent of piping on steel channel or double angle frames and secure to casings. Provide frames for maximum three coil sections. Arrange supports to avoid piercing drain pans. Provide airtight seal between coil and duct or casing.

F. Protect coils to prevent damage to fins and flanges. Comb out bent fins.

G. Wire electric duct coils in accordance with ANSI/NFPA 70.

***** END OF SECTION *****

SECTION 15855 - AIR HANDLING UNITS WITH COILS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Packaged Modular Air Handling Units (indoor & outdoor)

1.02 RELATED WORK

A. Section 15010.....Basic Mechanical Requirements.

B. Section 15242.....Vibration Isolation.

C. Section 15290.....Ductwork Insulation.

D. Section 15400.....Testing of Piping Systems.

E. Section 15510.....Hydronic Piping.

F. Section 15515.....Hydronic Specialties.

G. Section 15890.....Ductwork.

H. Section 15910.....Ductwork Accessories.

I. Section 16180.....Equipment Wiring Systems.

1.03 REFERENCES

A. AMCA 99—Standards Handbook.

B. AMCA 210—Laboratory Methods of Testing Fans for Rating Purposes.

C. AMCA 300—Test Code for Sound Rating Air Moving Devices.

D. AMCA 301—Method of Publishing Sound Ratings for Air Moving Devices.

E. ANSI/AFBMA 9—Load Ratings and Fatigue Life for Ball Bearings.

F. ANSI/AFBMA 11—Load Ratings and Fatigue Life for Roller Bearings.

G. ANSI/UL 900—Test Performance of Air Filter Units.

H. ARI 410—Forced-Circulation Air-Cooling and Air-Heating Coils.

I. ARI 430—Standard for Central-Station Air-Handling Units.

J. ARI 435—Standard for Application of Central-Station Air-Handling Units.

K. NFPA 90A—Installation of Air Conditioning and Ventilation Systems.

L. SMACNA—Metal Duct Standards.

1.04 QUALITY ASSURANCE

A. Fan Performance Ratings: Conform to AMCA 210 and bear the AMCA Certified Rating Seal.

B. Sound Ratings: AMCA 301; tested to AMCA 300 and bear AMCA Certified Sound Rating Seal.

C. Fabrication: Conform to AMCA 99 and ARI 430.

D. Filter Media: ANSI/UL 900 listed, Class I, approved by local authorities.

E. Air Coils: Certify capacities, pressure drops, and selection procedures in accordance with ARI 410.

F. Air Handling Units: Product of manufacturer regularly engaged in production of components who issues complete catalog data on total product.

1.05 SUBMITTALS

A. Submit shop drawings and product data under provisions of Section 15010 and Division 1.

B. Shop drawings shall indicate assembly, unit dimensions, weight loading, required clearances, construction details, and field connection details.

C. Product data shall indicate dimensions, weights, capacities, ratings, fan performance, motor electrical characteristics, and gages and finishes of materials.

D. Provide fan curves with specified operating point clearly plotted. Fan performance curve shall not be submitted in table form.

E. Submit sound power levels for both fan outlet and casing radiation at rated capacity.

F. Submit product data of filter media, filter performance data, filter assembly, and filter frames.

G. Submit electrical requirements for power supply wiring including wiring diagrams for interlock and control wiring, clearly indicating factory-installed and field-installed wiring.

H. Submit manufacturer's installation instructions under provisions of Division 1.

1.06 OPERATION AND MAINTENANCE DATA

A. Submit operation and maintenance data under provisions of Division 1.

B. Include instructions for lubrication, filter replacement, motor and drive replacement, spare parts lists, and wiring diagrams.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site under provisions of Division 1 in factory-fabricated protective containers, with factory-installed shipping skids and lifting lugs.

B. Store and protect products under provisions of Division 1.

C. All indoor double wall air handlers should be stored inside (Star Center shall provide area). When outdoor storage is necessary, it is recommended that these guidelines be followed:

- Select a well drained area, preferably a concrete pad or blacktop surface.
- Place the units on a dry surface or raised off the ground to assure adequate air circulation beneath unit and to assure that no portion of the unit contacts standing water at any time.
- Allow proper clearance around the unit to perform periodic inspection and maintenance of the equipment while in storage.
- Keep the equipment in the original shipping container for protection and care of handling.
- Cover the unit securely with a canvas tarp.

  NOTE: Use canvas only! Do not use clear or colored plastic or plastic tarps to cover the modular climate changer. Plastic will cause condensation to form in and on the equipment. This moisture can result in corrosion damage or wet storage stains.

- Ensure that the canvas tarp is secure.
- Do not stack units.
- Do not pile other material on the units.
- Loosen belt tension on dry belts.
- Every two weeks, rotate the fan and motor shaft thirty revolutions by hand. Check for free rotation
- Every six months, check fan shaft bearings and grease lines. Add grease using a manual grease gun following lubrication recommendations in the periodic maintenance section.
- Check the motor lubrications; remove and clean grease plugs, and check for the presence of moisture in the grease. If moisture is present,

remove the motor and send it to an authorized repair shop for bearing inspection/replacement. If no moisture is present, refer to the motor manufacturer's lubrication recommendation for proper lubrication.

1.08 ENVIRONMENTAL REQUIREMENTS

A. Do not operate units for any purpose, temporary or permanent, until ductwork is clean, filters are in place, bearings lubricated, and fan has been test run under observation.

B. Do not allow chilled water to flow through the unit when the unit is not operating.

1.09 EXTRA STOCK

A. Provide one (1) full original, one (1) prior to TAB, and one spare set of filters for each air handling unit (total of (3) sets). At the time of the Final Completion Walk-through, provide a clean set of filters so that the project is turned over with clean filters.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS—MODULAR AIR HANDLING UNITS WITH COILS

A. BASIS OF DESIGN—Daikin - Applied.

B. PRE-APPROVED SUBSTITUTES (Approved to Bid)

1. Trane—(Trane shall match unit size and weight.)

2. York/JCI—(York/JCI shall match unit size and weight.)

3. Carrier—(Carrier shall match unit size and weight.)

C. If any pre-approved substitute is provided and does not meet the size or weight requirements of the basis of design, any costs associated with any mechanical redesign shall be incurred by the mechanical contractor and manufacturer. Any structural redesign costs shall be incurred by the mechanical contractor and manufacturer.

2.02 GENERAL

A. The Contractor shall furnish and install the modular air handling unit(s) as shown and scheduled on the plans. The units shall be installed in strict accordance with the specifications. Unit shall be complete with fan section, electric heating section (AHU-104 only) cooling coil section, access section, filter with pre-filter section/mixing box, and all accessories specified (refer to drawings).

2.03 OUTDOOR AIR HANDLING UNIT (AHU-104)

A. CASING

1. Fabricate unit with 16 gauge channel posts and panels secured with mechanical fasteners. All panels, access doors and ship sections shall be sealed with permanently applied bulb-type gasket.

2. Panels and access doors shall be constructed as a 2-inch nominal thick, thermal broke double wall assembly, injected with foam insulation for an R-value of not less than R-13. The outer panel shall be constructed of G60 painted 18 gauge galvanized steel. The inner liner shall be constructed of G90 18 gauge galvanized steel.

3. Units shall have an insulated, double wall, stainless steel, indoor air quality, positively sloping drain pan under coil section for drainage of condensate. Drain connections shall extend through unit cabinetry. The condensate drain pan shall be constructed with closed cell foam insulation.

4. Full sized double wall access doors with safety handles shall be provided for quick access to the interior of the unit casing. Doors attached by screws or doors not continuously gasketed are not acceptable.

B. FILTERS

1. Air filters shall be American Air Filter—Varicel II or Eco-Air Ecocell, medium efficiency, extended surface, self-supporting, 2" mini-pleat type. Each filter shall consist of a rigid ultra-fine glass fiber media pack, securely bonded to a double wall enclosing frame.

   The filter shall be classified by Underwriters' Laboratories Class 2 when tested according to UL Standard 900.

   Filter efficiency: MERV 8.

2. Provide three (3) sets: construction filters, final filters after substantial completion, and spares.

C. SUPPLY FAN AND MOTORS

1. Provide ECM, motorized impeller supply fan(s). Fan assembly shall include fan, fan base, motor and controller to accept 0-10vdc signal.

2. Fan assemblies including fan and motor shall be dynamically balanced by the manufacturer on all three planes and at all bearing supports. Manufacturer shall ensure maximum fan RPM is below the first critical speed.

3. Motors shall be mounted inside the unit casing.

4. Inverter shall be integral to the motor and come as an assembly from the fan manufacturer.

5. Fan section shall come equipped with a motor control panel mounted on the supply fan section. Both line voltage and low voltage wiring shall be done by the factory. Each fan shall have an isolation switch.

6. Motor control panel shall come with a low voltage terminal strip and shall include terminals for Fan On/Off, 0-10V signal and fan fault.

7. Unit shall come equipped with an automatic isolation damper upstream of each fan in the array. Damper shall be equipped with an adjustable, weighted counter balance to minimize static pressure loss.

8. Fan(s) shall be provided with piezometer ring (one ring per array). Controls contractor to provide & install transducers.

9. Unit shall be provided with fused disconnect in NEMA 3R enclosure.

10. Motor shall be brushless DC type with a permanent magnet rotor.

D. BEARINGS, SHAFTS AND DRIVES

1. Shafts shall be solid, hot rolled steel, ground and polished, keyed to shaft and protectively coated with lubricating oil. Hollow shafts are not acceptable.

E. COILS

1. Coils shall be manufactured by the same company as the supplier of the air handling unit. Coils shall be designed with aluminum plate fins and copper tubes.

2. Fins shall have collars drawn, belled and firmly bonded to the tubes by means of mechanical expansion of the tubes. No soldering or tinning shall be used in the bonding process. Coils shall be mounted in the unit casing to be accessible for service and can be removed from the unit either through the side or top. Capacities, pressure drops and selection procedure shall be certified in accordance with ARI Standard 410.

F. OUTSIDE AIR/RETURN AIR DAMPERS

1. Outside air/return air dampers shall be provided to modulate the volume of outside and return air. Dampers shall be of airfoil design and shall be either parallel or opposed blade type with metal compressible jamb seals and extruded vinyl blade edge seals on all blades. Blades shall rotate on stainless steel sleeve bearings. Maximum damper blade length shall be 60 inches. Leakage rate shall not exceed five CFM/square foot at one inch W.G. and nine CFM/square foot at four inches W.G.

G. ELECTRIC HEAT

1. Unit shall be provided with integral electric heat. Provide fused disconnect for SCR controlled electric heater.

H. CURB ADAPTER

1. Curb adapter shall be fully insulated, wind rated, signed and sealed by structural engineer.

2.04 INDOOR AIR HANDLING UNIT (AHU-161)

A. CASING

1. Fabricate unit with 16 gauge channel posts and panels secured with mechanical fasteners. All panels, access doors and ship sections shall be sealed with permanently applied bulb-type gasket.

2. Panels and access doors shall be constructed as a 2-inch nominal thick, thermal broke double wall assembly, injected with foam insulation for an R-value of not less than R-13. The outer panel shall be constructed of G60 painted 18 gauge galvanized steel. The inner liner shall be constructed of G90 18 gauge galvanized steel.

3. Units shall have an insulated, double wall, stainless steel, indoor air quality, positively sloping drain pan under coil section for drainage of condensate. Drain connections shall extend through unit cabinetry. The condensate drain pan shall be constructed with closed cell foam insulation.

4. Full sized double wall access doors with safety handles shall be provided for quick access to the interior of the unit casing. Doors attached by screws or doors not continuously gasketed are not acceptable.

B. FILTERS

1. Air filters shall be American Air Filter—Varicel II or Eco-Air Ecocell, medium efficiency, extended surface, self-supporting, 2" mini-pleat type. Each filter shall consist of a rigid ultra-fine glass fiber media pack, securely bonded to a double wall enclosing frame.

   The filter shall be classified by Underwriters' Laboratories Class 2 when tested according to UL Standard 900.

   Filter efficiency: MERV 8.

2. Provide three (3) sets: construction filters, final filters after substantial completion, and spares.

C. SUPPLY FAN AND MOTOR

1. Provide ECM, motorized impeller supply fan(s). Fan assembly shall include fan, fan base, motor and controller to accept 0-10vdc signal.

2. Fan assemblies including fan and motor shall be dynamically balanced by the manufacturer on all three planes and at all bearing supports. Manufacturer shall ensure maximum fan RPM is below the first critical speed.

3. Motors shall be mounted inside the unit casing.

4. Inverter shall be integral to the motor and come as an assembly from the fan manufacturer.

5. Fan section shall come equipped with a motor control panel mounted on the supply fan section. Both line voltage and low voltage wiring shall be done by the factory. Each fan shall have an isolation switch.

6. Motor control panel shall come with a low voltage terminal strip and shall include terminals for Fan On/Off, 0-10V signal and fan fault.

7. Unit shall come equipped with an automatic isolation damper upstream of each fan in the array. Damper shall be equipped with an adjustable, weighted counter balance to minimize static pressure loss.

8. Fan(s) shall be provided with piezometer ring (one ring per array). Controls contractor to provide & install transducers.

9. Unit shall be provided with fused disconnect in NEMA 3R enclosure.

10. Motor shall be brushless DC type with a permanent magnet rotor.

D. BEARINGS, SHAFTS AND DRIVES

1. Shafts shall be solid, hot rolled steel, ground and polished, keyed to shaft and protectively coated with lubricating oil. Hollow shafts are not acceptable.

E. COILS

1. Coils shall be manufactured by the same company as the supplier of the air handling unit. Coils shall be designed with aluminum plate fins and copper tubes.

2. Fins shall have collars drawn, belled and firmly bonded to the tubes by means of mechanical expansion of the tubes. No soldering or tinning shall be used in the bonding process. Coils shall be mounted in the unit casing to be accessible for service and can be removed from the unit either through the side or top. Capacities, pressure drops and selection procedure shall be certified in accordance with ARI Standard 410.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions and in conformance with ARI 430.

B. Install unit on vibration isolators. Refer to Section 15242.

C. Because of phased construction and mechanical room constraints, the manufacturer shall make provisions for the air handlers to be field assembled, if required. The Mechanical Contractor shall coordinate installation of the air handlers with the General Contractor, prior to construction of mechanical room walls. The cost of assembly shall be included as a basic part of this project.

D. The Contractor shall make condensate drain connections at all drain pan pipe fittings furnished with the unit and manifold them to a single condensate trap, then slope/pipe to room floor drain. The condensate drain shall be configured and dimensioned to remove all condensate from the drain pan in accordance with the manufacturer’s recommended dimensional formula. The dimensional data shown on the drawing details should be used as a guide only. The installed trap shall have a minimum 4 inch height differential between the unit drain connection and trap discharge.

E. Provide coil piping insulation flush and tight against side of unit. Provide a bead of caulk to insure the integrity of vapor seal.

F. Seal any penetration in unit caused by cutting casing or mounting devices to unit.

G. Start-up Checklist Items:

1. Check to insure condensate trap is effective. With the unit operating, check condensate flow then open the fan section access door. If the flow does not increase dramatically with the door open, the trap is correct. If the flow increases significantly, then the trap is incorrect and the unit must be properly trapped.

- SECTION END -

SECTION 15890 - DUCTWORK

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Ductwork.

1.02 RELATED WORK

A. Section 15010.....Basic Mechanical Requirements.

B. Section 15140.....Supports and Anchors.

C. Section 15290.....Ductwork Insulation.

D. Section 15855.....Air Handling Units with Coils.

E. Section 15910.....Ductwork Accessories.

F. Section 15936.....Air Outlets and Inlets.

G. Section 15975.....Building Management and Automatic Temperature Control System.

1.03 REFERENCES

A. ASHRAE—Handbook 1981 Fundamentals; Chapter 33 - Duct Design.

B. ASHRAE—Handbook 1983 Equipment; Chapter 1 - Duct Construction.

C. ASTM A90—Weight of Coating on Zinc-Coated (Galvanized) Iron or Steel Articles.

D. ASTM A167—Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.

E. ASTM A653—Standard Specification for Steel Sheet, Zinc-Coated (Galvanized), or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process.

F. ASTM B209—Aluminum and Aluminum Alloy Sheet and Plate.

G. NFPA 90A—Installation of Air Conditioning and Ventilating Systems.

H. SMACNA—HVAC Duct Construction Standards, Metal and Flexible, 1985 First Edition and 1995 Second Edition.

I. UL 181—Factory-Made Air Ducts and Connectors.

1.04 DEFINITIONS

A. Duct Sizes: Inside clear dimensions. For lined ducts, maintain sizes inside lining.

B. Low Pressure: Three pressure classifications:

1. 1/2 inch WG positive or negative static pressure and velocities less than 2,000 fpm;

2. 1 inch WG positive or negative static pressure and velocities less than 2,500 fpm; and

3. 2 inch WG positive or negative static pressure and velocities less than 2,500 fpm.

C. Medium Pressure: Two pressure classifications:

1. 3 inch WG positive or negative static pressure and velocities less than 4,000 fpm; and

2. 4 inch WG positive static pressure and velocities less than 4,000 fpm.

1.05 REGULATORY REQUIREMENTS

A. Construct ductwork to NFPA 90A standards.

1.06 SUBMITTALS

A. Submit shop drawings and product data under provisions of Section 15010 and Supplementary General Conditions.

B. Submit ductwork shop drawings including plans and sections at a scale of 3/8" to a foot. Indicate duct pressure class, fittings, turning vanes, ductwork accessories, particulars such as gages, sizes, welds, duct reinforcement and configuration prior to start of work. Reproduction of the contract documents will not suffice. Shop drawings shall be submitted forty-five (45) days from the date of contract award.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site under provisions of Section 15010 and Supplementary General Conditions.

B. Store and protect products under provisions of Section 15010 and Supplementary General Conditions.

PART 2 - PRODUCTS

2.01 MATERIALS

A. General: Non-combustible or conforming to requirements for Class 1 air duct materials, or UL 181.

B. Steel Ducts: Galvanized steel sheet, lock-forming quality, having zinc coating of 1.25 oz per sq ft for each side in conformance with ASTM A90.

C. Fibrous Glass Ducts: Not to be used.

D. Fasteners: Rivets, bolts, or sheet metal screws.

E. Sealant: Non-hardening, water resistant, fire resistive, compatible with mating materials; liquid used alone or with tape, or heavy mastic.

F. Hanger Rod: Steel, galvanized; threaded both ends, threaded one end, or continuously threaded. Hang duct in trapeze fashion in accordance with SMACNA Standards.

G. Duct Supports: Straps may be used on ducts 24” wide and smaller, all others shall be supported on trapeze with hanger rods.

2.02 METAL DUCTWORK

A. Fabricate and support in accordance with SMACNA HVAC Duct Construction Standards and ASHRAE handbooks, except as indicated. Provide duct material, gages, reinforcing, and sealing for operating pressures/pressure classifications indicated.

B. All ductwork shall be sealed in accordance with the requirements of Seal Class “A.” Seal all transverse joints, longitudinal seams, and duct wall penetrations.

C. Size round ducts installed in place of rectangular ducts in accordance with ASHRAE table of equivalent rectangular and round ducts. No variation of duct configuration or sizes permitted except by written permission.

D. Construct T's, bends, and elbows with radius of not less than 1-1/2 times width of duct on centerline. Provide turning vanes on all T's, bends, and elbows (including long radius elbows and short radius elbows).

E. Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible. Divergence upstream of equipment shall not exceed 30 degrees; convergence downstream shall not exceed 45 degrees.

F. Coordinate ductwork with building structure and all other trades prior to starting work to avoid conflicts.

G. Use double nuts and lock washers on threaded rod supports.

H. Formed on flanges (TDC/TDF/T25A/T25B) will be accepted. Formed on flanges shall be constructed as SMACNA T-25 flanges whose limits are defined on Page 1.36, 1995 SMACNA Manual, Second Edition. Formed on flanges are not allowed beyond 42" wide ductwork, or above 2" w.g. No other duct construction pertaining to formed on flanges will be accepted.

I. Construct rectangular ductwork to meet all functional criteria defined in Section VII, of the SMACNA "HVAC Duct Construction Standards, Metal and Flexible" 1985 First Edition. All ductwork shall comply with all local, state, and federal code requirements.

2.03 SCHEDULE OF DUCT CONSTRUCTION REQUIREMENTS

A. VAV Supply Ductwork (High Side): 2 inch WG positive static pressure and velocities less than 2,500 fpm. Test duct leakage in accordance with Seal Class A.

B. All Air Handlers (first 40 feet on supply side of unit connection): 4 inch WG positive static pressure and velocities less than 4,000 fpm. Test duct leakage in accordance with Seal Class A.

C. Outside Air Ductwork: 1 inch positive or negative static pressure and velocities less than 2,500 fpm. Seal ductwork in accordance with Seal Class A. Testing may not be required if deemed acceptable by the Engineer during construction. Test duct leakage in accordance with Seal Class C.

D. All Others: Refer to SMACNA HVAC Duct Construction Standards, 1985, Table 1-1 and Table 1-2, unless noted otherwise herein.

2.04 FLEXIBLE DUCT

A. Air Device Connection Ductwork: Flexible fiberglass duct with a maximum thermal conductivity of 0.24 BTU/HR - degrees F - Sq.Ft. at 75 degrees F mean temperature with a maximum flame spread rating of 25 and smoke developed rating of 50. Flexible fiberglass duct shall be Owens-Corning Valuflex or approved equal. The duct shall conform to NFPA 90A, 90B, and be listed by Underwriters Laboratories as 181 Class I Air Duct.

1. Flexible fiberglass duct shall be provided with bellmouth fitting, volume damper, and metal clamp.

2. Flexible fiberglass duct size shall be same as air device neck size unless otherwise noted.

3. Flexible fiberglass duct length shall be a maximum of 9 feet and a minimum of 4 feet.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Provide openings in ductwork where required to accommodate smoke detectors and sensors. Provide pitot tube openings where required for testing of systems, complete with metal cap with spring device or screw to ensure against air leakage. Where openings are provided in insulated ductwork, install insulation material inside a metal ring.

B. Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities.

C. During construction provide temporary closures of metal or taped polyethylene on open ductwork to prevent construction dust from entering ductwork system.

D. Install motorized control dampers, duct mounted temperature pressure sensors and air monitors in ductwork; dampers, sensors and air monitors supplied under Section 15975, installed by the Mechanical Contractor.

E. All ductwork connected to motor driven equipment shall be provided with flexible duct connections.

F. Install 18" x 18" duct access doors within 6-8 feet of each air handler for both the return and supply.

G. Install duct smoke detectors in ductwork furnished by others as shown on the drawings and as recommended by the detector manufacturer and six (6) duct diameters after a bend or obstruction in the duct. Provide a minimum 8" x 8" access door in duct at location of detector for maintenance and inspection of tube.

3.02 ADJUSTING, TESTING, AND CLEANING

A. Clean duct system and force air at high velocity through duct to remove accumulated dust. To obtain sufficient air, clean half the system at a time. Protect equipment which may be harmed by excessive dirt with temporary filters, or bypass during cleaning.

B. All ducts of all pressures shall be leak-tested as per SMACNA 1985 Edition, HVAC Air Duct Leakage Test Manual, in the presence of the Engineer and Owner's representative. The tabulated test results shall be submitted to the Engineer. Duct shall be tested in accordance with the applicable leakage class as defined and scheduled herein. Reference Figure 4-1, Duct Leakage Classification, and Table 4-1, Applicable Leakage Classes, of SMACNA Manual. If the leakage constant determined from the tests is lower than or equal to the specified leakage class, the duct is in compliance. If the duct is not in compliance, the duct shall be resealed and retested until the duct is tested and found to be in compliance.

3.03 DUCTWORK APPLICATION SCHEDULE

AIR SYSTEM	MATERIAL
Low Pressure Supply	Galvanized Steel
Medium Pressure Supply	Galvanized Steel

- SECTION END -

SECTION 15910 - DUCTWORK ACCESSORIES

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Volume Control Dampers.

B. Air Turning Devices.

C. Flexible Duct Connections.

D. Duct Test Holes.

E. Motor Operated Dampers.

F. Access Doors.

1.02 RELATED WORK

A. Section 15010.....Basic Mechanical Requirements.

B. Section 15855.....Air Handling Units with Coils.

C. Section 15890.....Ductwork.

D. Section 15975.....Building Management and Automatic Temperature Control System.

1.03 REFERENCES

A. NFPA 90A—Installation of Air Conditioning and Ventilating Systems.

B. SMACNA—Low Pressure Duct Construction Standards.

1.04 SUBMITTALS

A. Submit shop drawings and product data under provisions of Section 15010, General Conditions, and Supplementary General Conditions.

PART 2 - PRODUCTS

2.01 VOLUME CONTROL DAMPERS (BALANCING)

A. Fabricate in accordance with SMACNA Low Pressure Duct Construction Standards, and as indicated.

B. Fabricate multi-blade damper of opposed blade pattern for ducts more than 12" in height and single blade dampers for ducts 12" in height or less with

maximum blade length of 48 inches. Assemble center and edge crimped blades in prime coated or galvanized channel frame with suitable hardware.

C. Provide locking, indicating quadrant regulators on single and multi-blade dampers. Where rod lengths exceed 30 inches provide regulator at both ends. Shaft shall extend beyond thickness of insulation to allow unobstructed operation of handle and locking mechanism.

2.02 AIR TURNING VANES

A. Turning Vanes Over 36 Inches:

Multi-blade device with double thickness air foil blades with long trailing edge vanes, aligned in short dimension, steel or aluminum construction, with individually adjustable blades, mounting straps. Refer to SMACNA HVAC Duct Construction Standards, First Edition, for spacing, reinforcing, and other construction quality details.

B. Turning Vanes up to 36 Inches:

Single blade device with long trailing edge vanes, aligned, steel or aluminum construction, with individually adjustable blades, mounting straps. Refer to SMACNA HVAC Duct Construction Standards, First Edition, for spacing, reinforcing, and other construction quality details.

2.03 DUCT CONNECTIONS

A. Fabricate in accordance with SMACNA HVAC Duct Construction Standards, and as indicated.

B. Rectangular to Round Runout and Branch Connection:

1. Provide Bellmouth spin-in collar fittings installed per manufacturer's recommendation and in accordance with SMACNA. Provide metal clamps to secure insulation and vapor barrier over the core connection. If height of Bellmouth fitting does not work with duct dimensions, provide a flat oval Bellmouth fitting or rectangle to round fitting. All branch connections shall be provided with volume damper and extended handle/locking mechanism.

2. Fittings shall be completely sealed, insulated, taped, and masticed.

C. Air Handler Duct Connection:

1. Provide U.L. listed, fire-retardant, neoprene coated woven glass fiber fabric to NFPA 90A, minimum density, 36 oz. per sq.yd., approximately 6 inches wide, crimped into metal edging strip.

2. Connections shall be completely sealed, insulated, taped, and masticed.

2.04 DUCT TEST HOLES

A. Cut or drill temporary test holes in ducts as required. Cap with neat patches, neoprene plugs, threaded plugs, or threaded or twist-on metal caps.

B. Permanent test holes shall be factory fabricated, air tight flanged fittings with screw cap. Provide extended neck fittings to clear insulation.

2.05 MOTOR OPERATED DAMPERS

A. Dampers (except smoke or combination fire/smoke dampers) shall be furnished by automatic controls contractor and installed by the mechanical contractor.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install accessories in accordance with manufacturer's instructions.

B. Provide balancing dampers at points on low pressure supply, return, and exhaust systems where branches are taken from larger ducts as required for air balancing.

C. Provide backdraft dampers on exhaust fans or exhaust ducts nearest to outside and where indicated.

D. Provide flexible connections immediately adjacent to equipment in ducts associated with fans and motorized equipment.

E. Provide duct test holes where required for testing and balancing purposes.

F. Motorized dampers are furnished under Section 15975, installed by the Mechanical Contractor.

G. Provide 18" x 18" access doors in ductwork within 6-8 feet of each air handler for both the return and supply.

- END SECTION -

SECTION 15975 – BAS INSTRUMENTATION AND CONTROL

PART 1 - GENERAL

1.0 Related Sections

The General and Supplementary Conditions and General Requirements apply to the work specified in this section—Automatic Temperature Control System (ATCS). References

A. American National Standards Institute (ANSI)

.1 ANSI/ISA 5.5-1985 Graphic Symbols for Process Displays.

.2 ANSI/IEEE 260.1 2004, Standard Letter Symbols for SI and Certain Other Units of Measurements (SI Units, Customary Inch Pound Units and Certain Other Units).

1.1 Acronyms, Abbreviations and Definitions

A. Acronyms used in BAS.

.1 BAS – Building Automation System
.2 EMCS – Energy Management and Control System
.3 GUI – Graphical User Interface
.4 HVAC - Heating, Ventilation, Air Conditioning
.5 I/O - Input/output
.6 ISA - Industry Standard Architecture
.7 O&M - Operation and Maintenance
.8 AI - Analog Input
.9 AO - Analog Output
.10 BACnet® - Building Automation and Control Network (a registered trademark of American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE))
.11 BAS - Building Automation System
.12 CAD - Computer Aided Design
.13 CDL - Control Description Logic
.14 COSV - Change of State or Value
.15 CPU - Central Processing Unit
.16 DI - Digital Input
.17 DO - Digital Output
.18 ECU - Equipment Control Unit
.19 IDE - Interface Device Equipment
.20 LAN - Local Area Network
.21 LCU - Local Control Unit
.22 NCU - Network Control Unit
.23 Niagara4 – Software framework for building device-to-enterprise applications and Internet-enabled products.
.24 OS - Operating System
.25 OWS - Operator Work Station
.26 PC - Personal Computer
.27 PCI - Peripheral Control Interface

.28 PCMCIA - Personal Computer Micro Card Interface Adapter RAM – Random
.29 Access Memory
.30 ROM - Read Only Memory
.31 TCU - Terminal Control Unit
.32 USB - Universal Serial Bus
.33 UPS - Uninterruptible Power Supply

1.2 Permits and Fees

A. In accordance with General Conditions of Contract. The Prime contractor shall electronically submit permit drawings and the project specifications manual to the Pinellas County Building Department.

1.3 General Description

A. Refer to control schematics for general system architecture.

B. Work covered by sections referred to above consists of fully operational BAS, including, but not limited to, following:

.1 Control devices as listed in I/O Summaries.

.2 Peripheral devices.

.3 Complete operating and maintenance manuals and field training of operators, programmers and maintenance personnel.

.4 Acceptance tests, technical support during commissioning, full documentation.

.5 Wiring interface co-ordination of equipment supplied by others.

.6 Miscellaneous work as specified in these sections and as indicated.

1.4 System to be “Open Protocol”.

A. BACnet® communications protocol will be used for communications.

.1 Work covered by sections referred to above consists of fully operational BAS, including, but not limited to, following:

Submit the Niagara4 Compatibility Statement (NiCS) verifying that all aspects of the Niagara Framework as provided to maintain an Open System Design. The System as provided shall confirm with the following NiCS properties.

.1 Property	.2 Value
.3 Station Compatibility IN	.4 All
.5 Station Compatibility OUT	.6 All
.7 Tool Compatibility IN	.8 All

.9 Tool Compatibility OUT .10 All

Provide a description and samples of Operator Workstation graphics and reports.

.11 Provide a URL address for the engineer to view the proposed functionality via a web based BAS through a standard web browser.

1.5 US Customary Measurement References

A. Conform to the latest NIST Handbook 44 - Appendix C “General Tables of Units of Measurement”.

B. Provide required adapters between US Customary and Metric components.

1.6 Standards Compliance

A. All equipment and material to be from manufacturer's regular production, UL and/or ULC or CSA certified, manufactured to standard quoted plus additional specified requirements.

B. Where UL and/or ULC or CSA certified equipment is not available submit such equipment to inspection authorities for special inspection and approval before delivery to site.

C. Submit proof of compliance to specified standards with shop drawings and product data. Label or listing of specified organization is acceptable evidence.

D. In lieu of such evidence, submit certificate from testing organization, approved by Owner, certifying that item was tested in accordance with their test methods and that item conforms to their standard/code.

E. For materials whose compliance with organizational standards/codes/specifications is not regulated by an organization using its own listing or label as proof of compliance, furnish certificate stating that material complies with applicable referenced standard or specification.

1.7 Existing Control Components

A. Remove existing controls, wiring, conduit (if not reused) etc. for AHU’s and associated equipment being removed. Place in the Owner’s designated storage. All removed controls will remain the property of the Owner.

1.8 Work Included

A. Provide new Direct Digital Controls for four new AHUs and all associated equipment including VAV controllers and electric heaters, network equipment, etc. The new controls shall utilize a new Niagara4 supervisory software to communicate with the new equipment and existing open protocol Niagara/Tridium based Jace at Building 500 via existing fiber optic. The new network shall utilize existing fiber optic cabling with new power supplies, network switches, transformers, ethernet cabling, conduit, supports, etc. as shown on the controls drawings for complete LAN system.

B. New DDC AHU controllers shall be Lynxspring Jenesys Edge 534. Utilize existing fiber conductors to create a new Niagara based DDC LAN network including new network switches, fiber media convertors, power supplies, transformers and ethernet cabling where shown on the control drawings.

1. There are four (4) extra fiber strands available for use for the new direct digital controls. The main headend (existing internet connection) is located at building 500.

2. The new Niagara supervisory software shall be installed on one (1) Star Center existing DDC workstation (Facility Engineer's office). Refer to new controls LAN Comm. Riser.

3. Provide all new enclosures, network switches, fire wall, ethernet cabling, power supplies, conduits, supports, etc. To complete the new DDC fiber optic/ethernet network. All exposed fiber shall be in conduit between fiber patch panel and new media converter.

4. Connect existing open protocol Distech Jace to new DDC network switch located in building 500 Comm. Room. Refer to DDC comm. riser drawing.

C. Provide control valves, control dampers (gravity, fire and smoke control dampers by others), flow switches, thermal wells for temperature control, and air flow stations as necessary.

D. Provide submittal data sheets, control drawings schematics (in PDF file format), data entry, and electrical installation, programming, start up, test and validation acceptance documentation, as-built documentation, maintenance manuals and system warranties.

E. All labor, material, equipment and services not specifically referred to in this specification or on associated drawings that are required to fulfill the functional intent of this specification shall be provided at no additional cost to the Owner.

F. The work covered by this specification and related sections consists of providing shop drawings, equipment, labor, materials, engineering, technical supervision, and transportation as required to furnish and install a fully operational BAS to monitor and control the facilities listed herein, and as required to provide the operation specified in strict accordance with these documents, and subject to the terms and conditions of the contract. The work in general consists of but is not limited to, the following:

.1 The preparation of submittals and provision of all related services.

.2 Furnish and install all to achieve system operation, any control devices, conduit and wiring, in the facility as required to provide the operation specified.

.3 Furnish complete operating and maintenance manuals and field training of operators, programmers, and maintenance personnel.

.4 Perform acceptance tests and commissioning as indicated.

.5 Provide full documentation for all applications and equipment.

.6 Miscellaneous work as indicated in these specifications.

1.9 Work By Others

A. Setting in place of valves and dampers, access doors, flow meters, water pressure and differential taps, flow switches, thermal wells, fire and smoke control dampers, air flow stations, and current transformers shall be by others.

B. Duct smoke detectors shall be provided by the Fire Alarm contractor. Coordinate with the FA Contractor for connection of VFDs and fan motor controllers for shutdown upon activation of the fire alarm.

C. High and low temperature thermostats shall be provided by this section.

D. Switches, and power wiring to motors, starters, thermal overload switches, and contactors, is specified in Division 16. This Section includes the furnishing and installation of controls and wiring for automatic controls, electric damper and valve operators, terminal control units, interlocks, starting circuits, and wiring to power consuming control devices.

1.10 BAS Contractor Qualifications

A. Prior to the Prime contractor submitting the bid package to Pinellas County the BAS contractor is to:

.1 Provide proof of having a local office within 50 miles of project for at least 5 years, staffed by trained personnel capable of providing instruction, routine maintenance, emergency service on systems,

.2 The contractor must be regularly engaged in the service and installation of BACnet and Niagara4 as specified herein. Provide record of successful installations of similar size, performed by Contractor submitting the tender, showing successful experience with similar computer based systems. The Contractor shall have a minimum of 5 years' experience in the sales, installation, engineering, programming servicing and commissioning of Niagara4.

.3 The Contractor must be an authorized factory direct representative in good standing of the manufacturer of the proposed hardware and software components. Provide a letter dated within the last 12 months, from the manufacturer certifying that the Contractor is an authorized factory direct representative.

.4 The Contractor shall a minimum of three (3) technicians who have successfully completed the factory authorized training of the proposed manufactures hardware and software components and have successfully completed Niagara4 certification course(s).

.1 Contractor must provide proof of required training.

.2 The Contractor's capabilities shall include engineering and design of control systems, programming, electrical installation of control systems, troubling shooting and service.

.5 The contractor shall submit a list of no less than three (3) similar (in function, application and design) projects, which have similar Building Automation Systems as specified herein installed by the Contractor.

.6 These projects must be on-line and functional such that the Owner's/User's representative can observe the system in full operation.

.7 Provide proof of having access to local supplies of essential parts and provide 7-year guarantee of availability of compatible spare parts after manufacturer's declaration of obsolescence.

.8 Two controls techs must obtain Raytheon Non-Escort badges by completing a third party screening process and once complete provide proof of US Citizenship. All other technicians must be us citizens as well, but receive a daily visitor's badge when at the site. Refer to other specifications and drawings.

1.11 System Design Responsibility

A. Design and provide all conduit and wiring linking all elements of system, including future capability. Refer to Div. 16 Electrical Specifications for conduit requirements.

B. Location of controllers to be approved by STAR Center Facility Engineer prior to installation.

C. Provide utility power or emergency power where directed and/or indicated on drawings, to controllers.

D. User Access

.1 The supplied system must incorporate the ability to access all data using standard Web browsers without requiring proprietary operator interface and configuration programs.

E. An Open DataBase Connectivity (ODBC) or Structured Query Language (SQL) compliant server database is required for all system databases, all controller program graphics and network databases which shall be provided in a Niagara4 Framework format.

.1 This data shall reside on a supplier-installed server for all database access.

.2 Systems requiring proprietary database and user interface programs shall not be acceptable.

F. Software Tools

a. All software tools needed for full functional use, including programming of controllers, Niagara4 Framework network management and expansion, and graphical user interface use and development, of the BAS described within these specifications shall be provided to the owner or his designated agent.

i. Any licensing required by the manufacturer now and to the completion of the warranty period, including changes to the licensee of the software tools and the addition of hardware corresponding to the licenses, to allow for a complete and operational system for both normal day to day operation and servicing shall be provided.

ii. Any such changes to the designated license holders shall be made by the manufacturer upon written request by the owner or his agent.

iii. Any cost associated with the license changes shall be identified within the BAS submittals.

G. Software License Agreement

.1 The Owner shall sign a copy of the manufacturer's standard software and firmware licensing agreement as a condition of this contract.

.2 Such license shall grant use of all programs and application software to Owner as defined by the manufacturer's license agreement, but shall protect manufacturer's rights to disclosure of trade secrets contained within such software.

.3 The Owner shall be the named license holder of all software associated with any and all incremental work on the project(s).

.4 In addition, the Owner shall receive ownership of all job specific configuration documentation, data files, and application-level software developed for the project.

.5 This shall include all custom, job specific software code, databases and documentation for all configuration and programming that is generated for a given project and/or configured for use with the NCU, Server, OWS and any related LAN/WAN/Intranet and Internet connected routers and devices.

.6 Any and all required User IDs and passwords for access to any component or software program shall be provided to the owner.

1.12 DYNAMIC DATA ACCESS

A. The Niagara Supervisory software shall be loaded onto the facility engineer’s DDC workstation. The program shall be accessible from the Facility Operations Manager’s IT and Comm. Center DDC workstation, as well on as online through the internet, shall have the ability to access all point status and application report data or execute control functions for any and all other devices via the local area network. Access to data shall be based upon logical identification of building equipment.

1.13 NETWORKS

A. The new Niagara Supervisory network must be based an Open Systems.

B. Niagara4 shall be used at the network levels as the manager(s).

C. High-speed data transfer rates for alarm reporting, quick report generation form multiple controllers and upload/download efficiency between network devices.

D. Support of any combination of controllers and operator workstations directly connected to the local area network. A minimum of 50 devices shall be supported on a single local area network.

E. Detection and accommodation of single or multiple failures of workstations, controller panels and the network media. The network shall include provisions for automatically reconfiguring itself to allow all operational equipment to perform their designated functions as effectively as possible in the event of single or multiple failures.

F. Message and alarm buffering to prevent information from being lost.

G. Error detection, correction, and retransmission to guarantee data integrity.

H. Default device definition to prevent loss of alarms or data, and ensure alarms are reported as quickly as possible in the event an operator device does not respond.

I. Commonly available, multiple sourced, networking components shall be used to allow the system to coexist with other networking applications such as office automation. Ethernet to IEEE 802.3 standard is the only acceptable technology.

J. Synchronization of the real-time clocks in all NCU panels shall be provided.

K. The BAS LAN shall be a 100 Megabits/sec Ethernet network supporting BACnet, Java, XML, HTTP, SOAP, OBIX, SNMP and SMTP Protocols for maximum flexibility for integration of building data with enterprise information systems and providing support for multiple Network Control Units (NCUs), user workstations and where specified, a local server. Local area network minimum physical and media access requirements:

.1 Ethernet; IEEE standard 802.3

.2 Cable; 100 Base-T, UTP-8 wire, category 5

.3 Minimum throughput; 100 Mbps

.4 Provide access to the BAS LAN from a remote location, via the owner's existing Internet service provided. Provide a switch/firewall between the building LAN and the BAS LAN - see item M of this section. Through this connection the BAS LAN will provide authorized staff with the ability to monitor and control the BAS from a remote location through a web browser, or web enabled devices.

L. Controller Local Area Network (BAS sub LAN)

.1 Provide a network of stand-alone, distributed direct digital controllers that operate on the following protocol using the specified physical layers:

.1 The BAS sub LAN shall employ the BACnet protocol for communication between controllers. BACnet protocol implementation shall adhere to the ANSI/ASHRAE Standard 135. Communications between BACnet devices shall be 76.8 kbps over approved twisted shielded pair cabling utilizing Master/Slave Toke Passing BACnet protocol. BACnet defines a comprehensive set of object types and application services for communication requirements among all levels of control in a distributed, hierarchical Building Automation System. BACnet is intended to provide a single, uniform standard for the BAS to provide the required interoperability.

.2 Strict adherence to industry standards including ANSI/ASHRAE Standard 135, BACnet, certified by BACnet Testing Laboratory (BTL listed) to assure interoperability between all system components. Controllers that are not BTL listed are unacceptable.

.3 Provide BAS Controllers that conform to ANSI/ASHRAE Standard. 135, BACnet Controls using proprietary protocols or protocols other than listed herein are unacceptable.

.4 The design of the BAS sub LAN shall network Local Control Unit (LCU) and Terminal Control Unit (TCU) to a Network Control Unit (NCU).

.5 This level of communication shall support a family of application specific controllers and shall communicate bi-directionally with the network through DDC Controllers for transmission of global data.

.6 Terminal Control Unit (TCU) shall be arranged on the BAS sub LAN's in a functional relationship manner with Local Control Unit (LCU). Ensure that a Variable Air Volume (VAV) Terminal Control Unit (TCU) is logically on the same LAN or segment as the Local Control Unit (LCU) that is controlling its corresponding Air Handling Unit (AHU).

M. Network firewall

.1 Manufacturer: Tosibox Lock 150 (Basis of design)

.2 Specifications:

i. **Ports**
1 x USB 2.0, type A
1 x RJ-45 WAN connection, 10/100 Mb/s, auto-negotiation (MDI / MDI-X)
3 x RJ-45 LAN connection, 10/100 Mb/s, auto-negotiation (MDI / MDI-X)
x RJ-45 Service connection, 10/100 Mb/s, auto-negotiation (MDI / MDI-X)

ii. **Connections**
10-30V DC ±10% (reverse polarity protected)
2 x Wireless network antenna connector, RP-SMA Female
DIN rail attachment (bottom), angle bracket available as an accessory (TBMBD1)

iii. **WAN Connection Features**
Independent of operating systems
Works in all Internet connections (operator independent)
Supports HTTP proxy servers with and without authentication
Firewall friendly
Works with dynamic, static and private IP addresses
Built-in firewall, NAT
Up to 10 concurrent VPN connections
VPN throughput 10 Mb/s**Mobile connection features**
Supported 4G USB modem: TOSIBOX® 4G modem, TB4GM (Huawei E3372), TB3GM2M (Huawei MS2131), TB4GM2M (Huawei MS2372)
TosiOnline™ Automatic network recovery that recovers from most mobile operator and modem problems

iv. **WLAN**
IEEE 802.11 b/g/n, max. 150 Mbps
WEP, WPA-PSK, WPA2-PSK, WPA-PSK/WPA2-PSK Mixed encryption
Frequency 2.412 – 2.462 GHz, 11 channels
Output power 20 dBm max

v. **Included Accessories**
RJ-45 Cat6 Ethernet cable, USB extension cable
2 x WLAN antennas, 2 dBi
AC Adapter: Input 100 – 240V AC, frequency 47 – 63 Hz, Output 24.0 V, 0.8 A, max 7.2 W. EU, UK, AU or US Power Socket
DC input plug
DIN rail mounting bracket

vi. **Physical Properties**
132 mm x 99 mm x 35.5 mm / 5.2" x 3.9" x 1.4" (L x W x H)
Weight 593 g / 1.31 lbs (net weight article)
Cast aluminium casing
Operating temperature -20 °C … +55 °C / -4 °F … 131 °F
Operating humidity: 20 – 80% RH, non-condensing
Storage temperature -40 °C … +70 °C / -40 °F … 158 °F
Protection class IP20

vii. **Lock 150 power source**
Model ATS024T-W240V
Operating temperature: 0 °C … +70 °C / 32°F… 158 °F @ 375mA / 9W load
Operating humidity: 20 - 80% non-condensing
Storage temperature: -20 °C … +70 °C / -4°F… 158

N. Media Converter

Ethernet Fiber Media converter
Manufacturer: Onet or approved equal
Supports Jumbo Ethernet Frames up to 9000 bytes (if needed, configurable by dip switches)
Supports QinQ and VLAN's - MTU size big enough to pass them through
One 1000Base-SX Multi Mode Dual Fiber port Port with **ST type connector -** up to 550m (0.34 miles) distance using 850 nm wavelength
One **10/100/1000Base-T RJ-45 port** Autosensing featured **- adapts to all 3 speeds!**
Connect it to Gigabit or Fast Ethernet ports
Status LED indicators for Power, Link/Activity, Full-Duplex, and Speed
Standards: IEEE802.3z/ab 100/1000/1000Base-T 1000Base-SX

Transmission Wavelength – **850 nm**, Fiber Connector Type: ST
Power supply: 100 to 240VAC 50 to 60Hz
Dimensions: 70.5mm - 2.77in - **(L)** X 94mm – 3.7in **(W)** X 26.5mm – 1.04in **(H)**
Environment: Relative humidity; 5% to 90%
Operating temperature: 0 to 70 degree Celsius (32 - 158 F)
Supports LLF feature - Link Loss Feature - (if needed, configurable by dip switches)

PART 2 - PRODUCTS

2.1 Quality Assurance

A. All new building automation system products on this project shall be provided by a firm that is a registered ISO 9001:2008 manufacturer, for a minimum duration of 5 years, at time of bid.

B. The Building Automation System shall be furnished, engineered, installed, tested, and calibrated by factory certified technicians qualified for this work. The contractor shall be Factory Authorized in good standing with the Manufacturer. Factory trained technicians shall provide instruction, routine maintenance, and emergency service within 24 hours upon receipt of request.

.1 Upon request, installer shall present records of successful completion of factory training courses including course outlines.

.2 Upon request, the installer shall provide a letter from the manufacturer that they are a Factory Authorized installer in good standing with the Manufacturer.

.3 The Controls Contractor shall furnish all electric relays and coordinate with the supplier of magnetic starters for the auxiliary contact requirements. All electric control devices shall be of a type to meet current, voltage, and switching requirement of their particular application. Relays shall be provided with 24 VAC coils and contacts shall be rated at 10 amps minimum

2.2 Facilities Management system

A. The DDC system shall be operated by the Lynxspring JENEsys Onyx platform with Tridium N4 Framework. All Niagara instances regardless of brand ID shall contain an open Niagara Capability Statement where all attributes are “*” for open.” All controllers provided must be BACnet IP/MSTP compatible:

2.3 Acceptable Manufacturers/(Installers)

A. KMC/Lynxspring (ABC Controls)

B. Distech/Lynxspring (Tekplan Solutions)

C. Honeywell/Lynxspring (Daikin Applied)

D. Tridium/Niagara4/Lynxspring (Basis of Design)

2.4 NIAGARA4 SUPERVISOR SOFTWARE

A. The Niagara Supervisor is part of the portfolio of Java-based controller/ server products, software applications and tools powered by the Niagara Framework®. It provides server-level functions for a network of JACE, Niagara Edge and other field devices. The Niagara Supervisor serves real-time graphical information to standard web-browser clients and performs essential functions such as analytics, centralized data logging/trending, archiving to external databases, alarming, dashboarding, system navigation, master scheduling, database management and integration with other enterprise software applications. Additionally, the Niagara Supervisor provides a comprehensive graphical engineering toolset for application development and configuration.

B. Specifications:

.1 Features a HTML5 and Java-enabled user interface (UI), and includes a JavaScript data interface library (BajaScript).

.2 Supports an unlimited number of users over the internet/intranet with a standard web browser (depending on the host PC resources).

.3 Optional enterprise-level data archival using SQL, MySQL or Oracle databases, and HTTP/HTML/ XML, CSV or text formats.

.4 “Audit Trail” of database changes, database storage and backup, global time functions, calendar, central scheduling, control and energy management routines.

.5 Sophisticated alarm processing and routing, including email alarm acknowledging.

.6 Access to alarms, logs, graphics, schedules, and configuration data with a standard web browser.

.7 Niagara follows industry best practices for cyber security, with support for features such as strong, hashed passwords, TLS for secure communications and certificate management tools for authentication. A built-in Security Dashboard provides a comprehensive and actionable view of the security posture of your Niagara deployment.

.8 HTML-based help system that includes comprehensive online system documentation.

.9 Supports multiple Niagara-based stations connected to a local Ethernet network or the internet. Provides online/offline use of the Niagara Framework® Workbench graphical configuration tool and a comprehensive Java Object Library.

.10 Optional direct Ethernet-based driver support for most Open IP fi eld bus protocols (see supported drivers document)

C. Software license and Maintenance

.1 Provide manufacturer’s software maintenance for 18 months and extended period of five (5) years.

.2 Provide software license for current highest version of Niagara minimum number of devices plus future devices.

.3 The Niagara Supervisor software shall be loaded onto one (1) existing DDC workstation located at the facility engineer's office. Coordinate with the STAR Center Facility Engineer.

D. Additional associated Software required.

.1 Provide latest version of SQL server and associated licensing.

2.5 DDC AHU-CONTROLLERS

A. Acceptable Manufacturers: Lynxspring

B. Basis of design System Edge Controller / Jenesys Edge 534 and Onyxx XM 3410.

C. Must include the following:

.1 Communicate on the local BAS fiber and ethernet system

.2 Programs and parameters stored in non-volatile memory.

.3 Access to parameters and program via laptop computer, handheld device or network. The controllers shall be fully programmable to meet the unique requirements of the facility it shall control.

.4 The controllers shall be capable of peer-to-peer communications with other SEC's and with any OWS connected to the BAS, whether the OWS is directly connected, connected via cellular modem or connected via the Internet.

.5 The communication protocols utilized for peer-to-peer communications between SEC's will be Niagara 4 Fox.

.6 BACnet TCP/IP, Modbus TCP and SNMP shall be optional. Use of a proprietary communication protocol for peer-to-peer communications between SEC's is not allowed.

.7 The SEC shall employ a device count capacity license model that supports expansion capabilities. Shall support up to 44 IO points (10 on board IO, 34 via expansion module)

.8 The SEC shall be enabled to support and shall be licensed with the following Open protocol drivers (client and server) by default: BACnet , Lon, MODBUS, SNMP.

.9 The SEC shall be capable of executing application control programs to provide: Calendar functions, Scheduling, Trending, Alarm monitoring and routing, Time, synchronization. Integration of LonWorks, BACnet, and MODBUS controller data. Application specific and custom control algorithms.

.10 The SEC shall provide the following hardware features as a minimum: Two 10/100 Mbps Ethernet ports. The SEC shall include two Ethernet ports that are capable and by default will route data between the two ports to allow for daisy chaining. Isolated RS-485 port, 512 MB DDR SDRAM, 2GB total eMMC flash storage, High Speed Field Bus Expansion, -20-60°C Ambient Operating Temperature, Integrated 24 VAC/DC Global Power Supply, Employ Encrypted Safe Boot Technology, 5 Universal inputs: Type 3 (10K) thermistors, 0-100K ohm, 0-10VDC, 0-20mA with external, resistor, Dry Contact, 2 Analog outputs: 0-10VDC, 4mA max output current, 3 Digital outputs: Triac, 24VAC @.5 amp, l. Option 34 IO expansion module- Niagara IO-R-34,

.11 The SEC shall support standard Web browser access via the Intranet/Internet. It shall support a minimum of, 16 simultaneous users.

.12 The SEC shall provide alarm recognition, storage, routing, management, and analysis to supplement, distributed capabilities of equipment or application specific controllers.

.13 The SEC shall be able to route any alarm condition to any defined user location whether connected to a local network or remote via cellular modem, or wide-area network. Alarm generation shall be selectable for annunciation type and acknowledgement requirements including but not limited to: 1) Alarm. 2) Return to normal. 3) To default. b. Alarms shall be annunciated in any of the following manners as defined by the user: 1) Screen message text. 2) Email of complete alarm message to multiple recipients. 3) Pagers via paging services that initiate a page on receipt of email message. 4) Graphics with flashing alarm object(s). c. The following shall be recorded by the SEC for each alarm (at a minimum): 1) Time and date. 2) Equipment (air handler #, access way, etc.). 3) Acknowledge time, date, and user who issued acknowledgement.

.14 Programming software and all controller "Setup Wizards" shall be embedded into the SEC.

.15 The SEC shall support the following security functions. Module code signing to verify the author of programming tool and confirm that the code has not been altered or corrupted. Role-Based Access Control (RBAC) for managing user roles and permissions. Require users to use strong credentials. Data in Motion and Sensitive Data at Rest be encrypted. LDAP and Kerberos integration of access management. Secure Boot technology

.16 The SEC shall support the following data modeling structures to utilize Search; Hierarchy; Template; and Permission functionality: Metadata: Descriptive tags to define the structure of properties. Tagging: Process to apply metadata to components Tag Dictionary, Niagara Analytics

.17 The SEC shall employ Niagara template functionality. Templates are a containerized set of configured data tags, graphics, histories, alarms that are set to be deployed as a unit based manufacturer’s controller and relationships. All lower level communicating controllers (PEC AUC, AVAV, VFD) shall have an associated template file for reuse on future project additions.

.18 SEC shall be based on the Tridium Vykon Edge 10 hardware and Niagara 4 software platform. The latest Niagara 4 revision shall be used.

.19 Applications include but are not limited to the following: Air Handling Units, Large Unit Ventilators, Large Fan Systems Other system specific control.

.20 Continuous Zone Temperature Histories: The DDC's shall have the capability to automatically and continuously maintain a history of the associated zone temperature to allow users to quickly analyze space comfort and equipment performance for the past 24 hours. A minimum of two samples per hour shall be stored. History requirement should be set by the Engineer to the customers specifications.

2.6 AIR TERMINAL CONTROLLERS

A. Must include the following:
1. Programs and parameters stored in nonvolatile memory.
2. Access to parameters and program via laptop computer, handheld device or network.
3. Integral actuator for air volume control (if available).
4. Prevent overlapping of heating and cooling setpoints.
5. Maintain airflow calibration without disrupting airflow.
6. Include Analog Output for reheat control where applicable.

B. Applications include:
1. Air terminal boxes
2. Terminal Reheat Coils
3. Other zone-specific control

C. Performance Requirements:
1. Min. Actuator Torque 35 in-lb
2. Min. Operating Temperatures 40 to 120 Deg F
3. Min. Operating Humidity 10 to 90% RH
4. Maintain Airflow +/- 5%
5. Maintain zone temperature +/- .5 Deg F.

2.7 UNITARY EQUIPMENT CONTROLLERS

A. Must include the following:
1. Communicate on the local BAS cable system.
2. Programs and parameters stored in nonvolatile memory.
3. Access to parameters and program via laptop computer, handheld device or network.

B. Applications include:
1. Rooftop Units
2. Unit Conditioners
3. Mini Splits
4. Small Fans
5. Floor Static Control stations
6. Other unit specific control

C. Performance Requirements:
1. Min. Operating Temperatures 40 to 120 Deg F
2. Min. Operating Humidity 10 to 90% RH
3. Maintain Airflow +/- 5%
4. Maintain zone temperature +/- .5 Deg FAD POWER SUPPLIES (transformers)

2.8 ACTUATORS

A. For dampers, the actuators used shall be provided from a single manufacturer.

B. For valves, the actuators used shall be provided from a single manufacturer.

C. Actuators shall be provided from a manufacturer registered under ISO9001:2000.

D. Electronic Damper Actuators.

.1 Size for torque required for damper seal at load conditions.

.2 Coupling: V-bolt dual nut clamp with a V-shaped, toothed cradle.

.3 Mounting: Actuators shall be capable of being mechanically and electrically paralleled to increase torque if required.

.4 Overload Protection: Electronic overload or digital rotation-sensing circuitry without the use of end switches to prevent any damage to the actuator during a stall condition.

.5 Fail-Safe Operation: Mechanical, spring-return mechanism. Internal chemical storage systems, capacitors, or other internal non-mechanical forms of fail-safe operation are not acceptable.

.6 Power Requirements (Two-Position Spring Return): 24 or 120 VAC as required.

.7 Power Requirements (Proportional): Maximum 10 VA at 24 VAC or 8 W at 24 VDC.

.8 Temperature Rating: -22 to +122°F (-30 to +50°C)

.9 Housing: Minimum requirement NEMA type 2 / IP54 mounted in any orientation.

.10 Agency Listing: ISO 9001, UL, UL(C) and CSA C22.2 No. 24-93.

.11 Manufacturer: Belimo

E. Electronic Valve Actuators.

.1 Size for torque required for valve close off at 150% of total system (head) pressure for 2-way valves; and 100% of pressure differential across the valve or 100% of total system (pump) head differential pressure for 3-way valves.

.2 Coupling: Directly couple end mount to stem, shaft, or ISO-style direct-coupled mounting pad.

.3 Mounting: Actuators shall be capable of being mechanically and electrically paralleled to increase torque if required.

.4 Overload Protection: Electronic overload or digital rotation-sensing circuitry without the use of end switches to deactivate the actuator at the end of rotation.

.5 Fail-Safe Operation: Mechanical, spring-return mechanism. Internal chemical storage systems, capacitors, or other internal non-mechanical forms of fail-safe operation are not acceptable.

.6 Power Requirements: Maximum 10 VA at 24 VAC or 8 W at 24 VDC.

.7 Maximum 1 VA at 24 VAC or 1 W at 24 VDC.

.8 Temperature Rating: -22 to +122°F (-30 to +50°C)

.9 Housing: Minimum requirement NEMA type 2 / IP54 mounted in any orientation.

.10 Agency Listing: ISO 9001, UL, UL(C) and CSA C22.2 No. 24-93.

.11 Manufacturer: Belimo

F. Terminal Unit Actuators

.1 Close-off (Differential) Pressure Rating: 200 psi.

.2 Coupling: V-bolt dual nut clamp with a V-shaped, toothed cradle or an ISO-style direct-coupled mounting pad.

.3 Power Requirements: Maximum 1 VA at 24 VAC or 1 W at 24 VDC.

.4 Temperature Rating: -22 to +122°F (-30 to +50°C). Housing Rating: Minimum UL94-5V(B) flammability.

.5 Agency Listing: CE, UL 60730-1A/-2-14, CAN/CSA E60730-1, CSA C22.2 No. 24-93, CE according to 89/336/EEC.

2.9 SENSORS AND DEVICES

A. Input/output sensors and devices shall be closely matched to the requirements of the BAS controller for accurate, responsive, noise-free signal input/output. Control input response shall be high sensitivity and matched to the loop gain requirements for precise and responsive control.

B. Sensors and transmitters shall be manually calibrated on site so that the wiring length does not detract from the sensor accuracy specified.

C. Provide guards (plastic or wire) for sensors, thermostats, and transmitters that are installed in public areas such as gymnasiums, classrooms, corridors, and vestibules.

D. Temperature sensors shall have the following characteristics:

1. Sensors shall have +/- 1.0 ˚F accuracy between 32 ˚F and 212 ˚F.

2. Space temperature sensors

a. Shall consist of an element within a ventilated cover.

b. Space sensors located in mechanical rooms and public shall contain a network jack, but shall have no ability to adjust temperature setpoint (Set Point Adjustment).

c. Space sensors shall be provided in accordance with the drawings and specifications with the following options:

.1 Sensor complete with Network Jack

.2 Sensor complete with Network Jack, and Set Point Adjustment

.3 Sensor complete with Network Jack, and illuminated Override switch

.4 Sensor complete with Network Jack, Set Point Adjustment, and illuminated Override switch

.5 Sensor complete with Network Jack, Set Point Adjustment, illuminated Override switch and Fan Speed Selection.

E. RTD Transmitter

1. Where reference is made on the drawings for a RTD transmitter, it shall be interpreted as follows:

2. Transmitters shall meet at minimum the following requirements.

a. Provide an RTD transmitter in configurations below meeting the following requirements:

1. 100 ohm or 1000 ohm PT RTD

2. 24V ac/dc power supply.

3. 4-20 mA, 0-10Vdc or 0-5Vdc outputs compatible with BMS.

4. Electronics accuracy of +/-0.1% of span.

5. Operating temperature range of 32˚F to 158˚F. OSA only - operating temperature range of -40˚F to 185˚F.

6. Optional LCD display

F. Temperature Sensor – Outside Air

1. Provide outside air temperature sensors as indicated within the field termination schedules and/or controls diagrams.

2. Temperature sensors shall meet, at minimum, the following requirements:

a. Aluminum LB with PVC sun and windscreen.

b. Wall mount weatherproof enclosure with conduit entrance.

c. Thermistor or RTD compatible with BMS

G. Temperature Sensor – Duct Mounted – Single Point

1. Provide duct mounted, single point, temperature sensor as indicated within the field termination schedules and/or controls diagrams as follows:

   a. In ducts less than 10 ft² in cross-sectional area.

   b. In ducts greater than 10 ft² in cross-sectional area if there is no heating coil and no cooling coil and no mixing of air flows of different temperature upstream.

2. Temperature sensors shall meet, at minimum, the following requirements:

   a. 0.25” stainless steel probe of length between one-third and two-thirds of the duct width.

   b. Thermistor or RTD compatible with BMS, sealed in probe with 3 part moisture protection system.

   c. Duct mounted ABS plenum rated housing with conduit entrance. (Optional metal, weather proof or no enclosure available)

H. Temperature Sensor – Duct Mounted – Averaging

1. Provide duct mounted, averaging, temperature sensor as indicated within the field termination schedules and/or controls diagrams as follows;

   a. In ducts greater than 10ft² in cross-sectional area.

2. Temperature sensors shall meet, at minimum, the following requirements:

   a. Probe length of 12 feet minimum or 1ft per ft² of duct cross-sectional area, which ever is greater.

   b. Copper sheathed or plenum rated flexible construction.

   c. Thermistor or RTD compatible with BMS.

   d. BMS shall report the monitored temperature with an accuracy of 2.0°F

   e. Duct mounted ABS plenum rated housing with conduit entrance. (Optional metal or weather proof available)

   f. Suitable supports at all bends and at intermediate points to prevent movement in the air systems.

I. Temperature Sensor – Wall Mounted – Lobby, Hallways Or Security Spaces

1. Provide wall mounted stainless plate temperature sensors for lobbies and lobby vestibule spaces as indicated within the field termination schedules and/or control diagrams as follows.

2. Temperature sensors shall meet, at minimum, the following requirements:

a. Stainless plate sensors to fit 4” X 2” junction box, available with or without tamperproof screws.

b. Thermistor or RTD compatible with BMS.

J. Temperature Sensor – Immersion - Thermowell Mounted

1. Provide thermowell mounted temperature sensors as indicated within the Field termination schedules and/or control diagrams as follows.

2. Temperature sensors shall meet, at minimum, the following requirements:

a. Rigid 0.25” stainless steel probe of length, which is, at minimum, 20% of the pipe width.

b. Thermistor or RTD Compatible with BMS sealed in probe with three-part moisture protection system.

c. BMS shall report the monitored temperature with an accuracy of 1.0°F

d. ABS housing with conduit entrance. (Optional metal or weather proof available)

e. Provide Brass or Stainless steel thermowell (316 or 304).

f. Provide with thermal grease to aid temperature sensing.

K. Temperature Sensor – Strap-On

1. Provide strap-on mounted temperature sensors as indicated within the Field termination schedules and/or control diagrams or where thermo well mounted sensors cannot be mounted. Temperature sensors shall meet, at minimum, the following requirements:

a. 0.25” Stainless steel probe, 2”

b. Thermistor or RTD compatible with BMS, sealed in probe with a three part moisture protection system

c. ABS housing with conduit entrance. (Optional metal or weather proof available)

L. Temperature Sensor – Strap-On - Plate

1. Provide strap-on mounted temperature sensors as indicated within the Field termination schedules and/or control diagrams or where thermo well mounted sensors cannot be mounted. Temperature sensors shall meet, at minimum, the following requirements:

a. Thermistor or RTD compatible with BMS, sealed in probe with a three part moisture protection system

b. A single point strap-on temperature sensor to be precision bonded to a 1.5”x1.5” aluminum plate and adhered to a 1.5” x 1“compressible foam. A 10” S/S Pipe clamp to be provided to secure the assembly to various sizes of pipe.

c. ABS housing with conduit entrance. (Optional metal or weather proof available)

M. Relative Humidity Sensor – Wall Mounted

1. Provide wall mounted relative humidity sensors as indicated within the Field termination schedules and/or control diagrams. Humidity sensors shall meet, at minimum, the following requirements:

a. White protective enclosure

b. Sensor to be laser trimmed thermoset polymer based capacitive type.

c. 24 Vac/dc power supply

d. 4-20 mA two wire, 0-10 Vdc and 0-5 Vdc output proportional to relative humidity range of 0% to 100% and compatible with BMS.

e. 2% accurate (5-95% RH). (3 & 5 % accurate units available)

f. Operating temperature range of 32˚F to 158˚F.

g. Reverse voltage protected and output limited.

h. Optional LCD display-SP and RH100A series

i. Optional set point adjustment-SP series

j. Optional push button override-RH100A series

N. Relative Humidity Sensor – Duct Mounted

1. Provide duct mounted relative humidity sensors as indicated within the Field termination schedules and/or control diagrams. Duct mounted relative humidity sensors shall meet, at minimum, the following requirements:

a. ABS housing with conduit entrance.

b. Sensor to be laser trimmed thermoset polymer based capacitive type.

c. 24 Vac/dc power supply.

d. 4-20 mA two wires, 0-10 Vdc and/or 0-5 Vdc output proportional to relative humidity range of 0% to 100% and compatible with BMS.

e. 2% accurate (5-95% RH). (3 & 5 % accurate units available)

f. 9” probe length.

g. Operating temperature range of 32˚F to 158˚F.

h. Reverse voltage protected and output limited.

i. 60 micron HDPE filter

O. Relative Humidity Sensor – Outside Air

1. Provide OSA relative humidity sensors as indicated within the Field termination schedules and/or control diagrams. Humidity sensors shall meet, at minimum, the following requirements:

a. ABS hinged weatherproof housing with conduit entrance.

b. Sensor to be laser trimmed thermoset polymer based capacitive type.

c. 24 Vac/dc power supply

d. 4-20 mA two wire, 0-10 Vdc and 0-5 Vdc output proportional to relative humidity range of 0% to 100% and compatible with BMS.

e. 2% accurate (5-95% RH).

f. Operating temperature range of 32˚F to 185˚F.

g. Reverse voltage protected and output limited.

P. Combination Relative Humidity And Temperature Sensors

1. Where there is a requirement for the monitoring of both relative humidity and temperature at the same location, the BMS Contractor shall provide a combination relative humidity sensor and temperature sensor. The individual sensors must each meet the specifications details above.

Q. Static Pressure Sensor – Duct Mounted

1. Provide duct mounted static pressure sensors as indicated within the Field termination schedules and/or control diagrams. Static pressure sensors shall meet, at minimum, the following requirements:

a. Input range shall be appropriate for the application. Select range such that it covers from zero duct static pressure relative to the exterior of the duct up to a static pressure of between 20% and 50% in excess of the maximum static pressure that could be encountered in the duct relative to the duct exterior. Typically, for ow pressure commercial duct consider using a range of 0 to 2” c., for medium pressure duct use a range of 0 to 6” wc. and for high-pressure duct use a range of 0 to 10” wc.

b. 4-20mA, 0-5 or 0-10Vdc output proportional to pressure input range compatible with BMS system.

c. 1% Full scale output accuracy

d. Operating temperature range of 32˚F to 140˚F.

e. Easily accessible, integral non-interacting zero adjustment.

f. Minimum over pressure input protection of two times rated input or 20 psi whichever is greater.

R. Differential Pressure Sensor – Air (Filter/Coil Monitoring)

1. Provide air differential pressure sensors as indicated in field termination schedules and/or control diagrams. Air differential pressure sensor shall meet, at minimum, the following requirements:

2. Sensors used for filter or coil differential pressures shall also have a display of the monitored differential pressure.

3. Output shall be 4-20mA, 0-10Vdc or 0-5Vdc output proportional to pressure input range compatible with BMS.

4. Select range as required, taking into consideration pressure drop across filter or coil. Typically 0-2” wc range for low-pressure commercial duct.

5. Operating temperature range of 32˚F to 140˚F.

S. Differential Pressure Switch – Air

1. Provide air differential pressure switches as indicated in field termination schedules and/or control diagrams. Air differential pressure switches shall meet, at minimum, the following requirements:

a. An IP54 (NEMA 13) polycarbonate housing.

b. SPDT switch rated at 250 Vac at 1 amp.

c. Field adjustable range from 0.02” wc to max range of device. Elect ge as required, taking into consideration pressure drop across lter or coil. Typically 0.2-2” wc range for low-pressure commercial duct.

d. Temperature range of -4˚F to 140˚F.

e. Set point adjustment knob with indication.

f. Automatic reset.

T. Air Flow Sensor

1. Provide airflow rate sensors and transducers as indicated in the Field termination schedules and/or control diagrams. Air flow rate sensors and transducer shall meet, at minimum, the following requirements:

a. Hot wire anemometer type.

b. Self-compensation for changes in air temperature.

c. Probe and transducer housing shall be constructed of durable PVC.

d. Probe shall be adjustable from 2” - 7.3”.

e. Power supply shall be 24 Vac/dc.

f. Output signal of 4-20 mA or 0-10Vdc proportional to air flow speed equal to 3150 ft/min or 1575 ft/min jumper selectable.

g. Air temperature range of 14˚F to 140˚ F.

h. 5% accuracy of measured value.

U. Water Pressure Sensor

1. Provide water pressure sensors as indicated within the Field termination schedules and/or control diagrams. Pressure sensors shall meet the following requirements:

a. Operating range shall be suitable for the application. Select range such that it covers from zero pressure to twice the amount of pressure desired for control purposes or that could be encountered.

b. 4-20 mA output proportional to water pressure.

c. 0.25% accuracy of range.

d. Temperature range of -40˚F to 260˚F.

e. Over pressure input protection of a minimum two times rated input.

f. An optional ABS wiring housing is available for an interior application and weatherproof wiring housing is available for an exterior application.

g. 17-4PH stainless steel wetted parts.

h. Burst pressure of a minimum five times rated input.

V. Water Differential/Gage Pressure Sensor

1. Provide water differential or gage pressure sensors as indicated in the Field termination schedules and /or control diagrams. Water differential pressure sensors shall meet, at minimum, the following requirements:

a. Output of 4-20 mA, 0-10 or 0-5 Vdc proportional to the pressure sensed.

b. Momentary over pressure protection of five times the rated input.

c. Operating range shall be suitable for the application. Select range such that it covers from zero differential pressure up to a differential static pressure of 20% to 50% in excess of the maximum static pressure that could be encountered. Remember that if the sensor is used for the control of a chilled water bypass and is located across, for example, a chilled water AHU coil, the pressure drop of both the coil and the associated valve at full design flow have to be taken into account.

d. Accuracy of better than 1% of full-scale reading.

e. Valve tapping shall be furnished and installed by the Mechanical contractor. Coordinate with the Mechanical contractor.

W. Current Relay/Switch

1. Provide current sensing relays as indicated in the Field termination schedules and/or control diagrams. Current sensing relays shall meet, at minimum, the following specifications:

a. Rated for the applicable load.

b. The output relay shall have an accessible trip adjustment over its complete operating range. Provide LED indication of relay status.

c. Current relay shall have input and output isolation via current transformer.

d. Current relay shall be self-powered with no insertion loss.

e. Relay shall be in a dustproof housing.

f. Accuracy to be <2% of full-scale max.

g. Temperature rating of 5˚F to 140˚F.

h. Whenever the status of a single speed motor is monitored it shall be done via a current sensing relay.

i. The BMS contractor shall provide current sensing relays at the MCC starters.

j. The BMS contractor shall provide the current sensing relays for motors with local starters and no MCC starter.

X. Current Sensor

1. Provide monitoring of the current as identified in Field termination sheets and/or control drawings. Current monitoring shall meet, at minimum, the following requirements:

a. 4-20 mA, 0-10 or 0-5 Vdc output proportional to current draw.

b. Reverse polarity protected and output limited.

c. 50/60 Hz operation.

d. Accuracy of better than 1%.

e. Operating temperature range of -20˚F to 120˚F.

Y. Discrete Combination Sensor

1. Discrete communicating sensor combining precise environmental sensing – temperature, humidity and CO2- ideal for applications requiring no occupant driven overrides

2. Dual connector ports for connection to field controller shall support both power and communication, with provision for “daisy-chain” connection, so that more than one communicating sensor can be used with a single field controller. Dual connector ports shall be female RJ45 ports, and shall be compatible with standard Ethernet pinout T568B.

3. Hardware options in combinations of any and all of the following

a. On board temperature sensor

i. Range of 41˚F to 104˚F.

ii. Accuracy of 0.9˚F.

iii. Resolution of 0.18˚F.

b. On-board humidity sensor:

i. Accuracy of 3% RH

ii. Resolution of 1% RH

c. Carbon Dioxide sensor:

i. Range of 0-2000 ppm

ii. Operating Elevation 0-16000 ft

iii. Accuracy of 30 ppm in range of 400-1250 ppm, or 3% of reading, whichever is higher

iv. Accuracy of 30ppm +/- 5% of reading in range of 1250 to 2000 ppm

v. Sensing Method of Non-Dispersive Infrared (NDIR) Absorption with gold-plated optics

vi. Periodic, automatic self-calibration using patented ABC Logic

4. Continuous operating temperature of standard versions shall be 221°F [105°C].

5. Enclosure shall be NEMA-6P [IP 68]

Z. Carbon Dioxide sensors

Provide carbon dioxide gas sensor/transmitter where shown on the control drawings. Sensor/transmitter shall meet the following specifications:
Measurement Range ..... 0 to 5,000 ppm
Accuracy ..... 5% full scale
Response Time ..... Less than one (1) minute
Output Signal ..... 4-20 mA
Output Impedance ..... 100 Ohms
Repeatability ..... 20 ppm
Drift ..... 100 ppm per year
Calibration Adjustments ..... Offset and span
Calibration Interval ..... One (1) year
Operating Temp. Range ..... 0 to 50ºC
Operating Humidity Range..... 5-95% RH non-condensing
Power Requirement ..... 20-30 VAC, 60 Hz or 20-30 VDC, 400 mA max.
Current Requirement ..... 200 mA average, 500 peak
Operating Elec. Environment ..... Floating or Grounded
Dimension (HxWxD) ..... 4" x 7.5" x 3"
Unit Enclosure Material ..... UL Fire Rated
Accessories ..... Calibration Kit & Instructions
Manufacturers: Must be compatible with Niagara/Tridium and BACnet.

AA. Outside Air Monitor Control

1. Provide for each of the VAV air handling units an airflow control center capable of performing the following functions: constant volume control of outside air. The intent is for the controls required to perform this function to be an integral part of the Building Management and Automatic Temperature Control System.

2. Each airflow monitor and control station shall be complete with velocity pressure transmitter and air volume flow rate control.

3. The major control instruments shall be of industrial process control quality and shall be capable of the following minimum performance:

Differential Pressure Transducer: The differential pressure transducer shall be capable of transmitting a linear 4 to 20 milliamp output signal proportional to the differential (velocity) pressure input signals within the following performance and applications criteria.

Calibrated Spans ..... not greater than 1-1/2 times the maximum design velocity pressure.
Calibrated Accuracy ..... □1.0% of span.
Repeatability ..... □0.05% of output.

Hystersis ..... □0.025% of span.
Linearity ..... □0.2% of span.
Stability ..... □0.2% drift/year.
Operating Range of Sensor .... 32□F to 150□F.
Operating Range of Transmitter 32□F to 150□F.
The transmitter output shall be unaffected by direction (or attitude) of mounting or external vibrations, and shall be furnished with a factory calibrated span.

AB. AIRFLOW MONITORING STATIONS

1. Each device shall be designed and built to comply with, and provide results in accordance with accepted practice as defined for system testing in the ASHRAE Handbook of Fundamentals as well as the Industrial Ventilation Handbook.
2. Airflow measuring stations shall be fabricated of heavy galvanized steel welded casing with 90o connecting flanges in a configuration and size equal to that of the duct it is mounted into. Each station shall be complete with an air directionalizer and parallel cell profile suppresser across the entering airstream and mechanically fastened to the casing, equal-area and equal-weighted averaging total pressure sensors and manifold, bullet-nose shaped static pressure sensors with averaging manifold, internal piping, and external pressure transmitter ports. An identification label shall be placed on each unit casing listing model number, size, area, and specified airflow capacity.
3. The maximum allowable pressure loss through the unit shall not exceed .1" W.G. Each unit shall be capable of measuring the airflow rate within an accuracy of 2% as determined by U.S. G.S.A. certification tests and shall contain a minimum of one total pressure sensor per thirty-six square inches of unit measuring area.
4. Stations shall be installed in strict accordance with the manufacturer's published requirements. These stations serve as the primary signals for the airflow control systems. It shall be the responsibility of the Contractor to verify location and installation to assure that accurate primary signals are obtained.
5. The units shall have a self-generated sound rating of less than NC40, and the sound level within the duct shall not be amplified nor shall additional sound be generated.
6. Manufacturers: shall be Ebtron Gold Series

2.10 VALVES

A. Unless otherwise indicated, hydronic system two and three-way automatic control valves shall be globe-style bodies and have the following characteristics:

.1 NPS 2 and Smaller: ANSI Class 250 bronze body, stainless steel stem, brass plug, bronze seat, and a TFE packing.

.2 NPS 2-½ and Larger: ANSI Class 125 cast iron body, stainless steel stem, bronze plug, bronze seat, and a TFE V-ring packing.

.3 Sizing

.1 Two-Position: Line size or size using a pressure differential of 1 psi.

.2 2-way Modulating: 5 psig or twice the load pressure drop, whichever is greater.

.3 3-way Modulating: Twice the load pressure drop, but not more than 5 psig.

B. Flow Characteristics: 2-way valves shall have equal percentage characteristics; 3-way valves shall have linear characteristics.

C. Close-off Pressure Rating: Combination of actuator and trim shall provide minimum close-off pressure rating of 150% of total system head pressure for 2-way valves and 150% of the design pressure differential across the 3-way valves.

D. Bodies for valves 3” to 6” shall be iron, cast iron or cast steel with flanged connections and shall be rated for ANSI Class 125 working pressure. Packing shall protect against leakage at the stem.

E. Unless otherwise indicated, steam system globe-style vales shall have the following characteristics:

.1 NPS 2 and Smaller: ANSI Class 250 bronze body; stainless steel seat, stem and plug; and a TFE packing.

.2 NPS 2-½ and Larger: ANSI Class 125 [250] cast iron body; stainless steel seat, stem and plug; and a TFE V-ring packing.

.3 Sizing:

a. Two-Position: Line size or sized using 10% of inlet gauge pressure.

b. Modulating: 15 psig or less inlet steam pressure, the pressure drop shall be 80% of inlet gauge pressure. Higher than 15 psig inlet steam pressure the pressure drop shall be 42% of the inlet absolute pressure.

.4 Flow Characteristics: Linear or equal percentage characteristics.

.5 Close-off Pressure Rating: Combination of actuator and trim shall provide minimum close-off pressure rating of 150% of operating (inlet) pressure.

F. Where specified, ball-style body automatic control valves shall adhere to the following:

.1 NPS 3 and Smaller: Nickel-plated forged brass body rated at no less than 400 psi, stainless steel ball and blowout proof stem, NPT female end fittings, with a dual EPDM O-ring packing design, fiberglass reinforced Teflon seats, and a Tefzel flow characterizing disc.

.2 Sizing:

a. Two-Position: Line size or size using a pressure differential of 1 psi.

b. 2-way Modulating: 5 psig or twice the load pressure drop, whichever is greater.

c. 3-way Modulating: Twice the load pressure drop, but not more than 5 psig.

.3 Close-off Pressure Rating: 100 psi. [NPS ¾" and Smaller for Terminal Units: 200 psi.]

.4 The actuator shall be the same manufacturer as the valve, integrally mounted to the valve at the factory with a single screw on a four-way DIN mounting-base.

.5 All control ball valves shall feature characterized flow guides when used for modulating applications.

G. Where specified, butterfly control valves shall adhere to the following:

.1 NPS 2 to 12: Valve body shall be full lugged cast iron 200 psig body with a 304 stainless steel disc, EPDM seat, extended neck and shall meet ANSI Class 125/150 flange standards. Disc-to-stem connection shall utilize an internal spline. External mechanical methods to achieve this mechanical connection, such as pins or screws, are not acceptable. The shaft shall be supported at four locations by RPTFE bushings.

.2 NPS 14 and Larger: Valve body shall be full lugged cast iron 150 psig body with a 304 stainless steel disc, EPDM seat, extended neck and shall meet ANSI Class 125/150 flange standards. Disc-to-stem connection shall utilize a dual-pin method to prevent the disc from settling onto the liner. The shaft shall be supported at four locations by RPTFE bushings.

.3 Sizing:

a. Two-Position: Line size or size using a pressure differential of 1 psi.

b. Modulating: [5 psig] or twice the load pressure drop, whichever is greater. Size for the design flow with the disc in a 60° open-position with the design velocity less than 12 feet per second.

.4 Close-off Pressure Rating: NPS 2" to 12" 200 psi bubble tight shutoff.

.5 NPS 14" and larger, 150 psi bubble tight shut-off.

H. Zone Valves (On/Off, Two-Position Applications):

.1 NPS 1 and Smaller: Forged brass body, rated at no less than 300 psi, female NPT union or sweat with a stainless steel stem and EPDM seals.

.2 Sizing:

a. Two-Position: Line size or size using a pressure differential of 1 psi.

.3 Close-off Pressure Rating: Combination of actuator and trim shall provide minimum close-off pressure rating of 150% of total system head pressure for 2-way valves and 125% of the design pressure differential across the 3-way valves.

.4 The actuator shall be the same manufacturer as the valve, integrally mounted to the valve at the factory.

2.11 AUTOMATIC CONTROL DAMPERS

A. Manufacturer shall submit leakage data for all control dampers with the temperature control dampers shall be minimum leakage type to conserve energy and the temperature control submittal.

B. Damper leakage ratings shall be certified in accordance with AMCA Standard 500-D.

C. Provide any automatic control dampers not specified to be integral with other equipment.

D. Provide automatic control dampers as specified herein:

.1 Frame construction shall not be less than 14 gauge galvanized steel or extruded aluminum at a minimum 4-1/2" X 1" X 0.125" in thickness.

.2 Blades shall be single skin and not less than 16-gauge galvanized steel roll formed or extruded aluminum. Blades shall not be over: 8" wide, 48" in length and 72" high.

.3 All blade edges and top and bottom of frame shall be provided with compressible seals. Side seals shall be compressible stainless steel of the tight-seal spring type.

.4 Blade seals shall provide for a maximum leakage rate of 10 CFM per square foot at 2.5 inches of WC differential pressure. Dampers and seals shall be suitable for temperature ranges of -40 to 180 ˚F.

.5 Bearings shall corrosion resistant, molded synthetic sleeve type turning in an extruded hole in the damper frame.

.6 Axles shall be a minimum of ½" diameter and be welded to blade or riveted to blade.

.7 Dampers shall be sized to meet flow requirements of the application. The sheet metal contractor shall furnish and install baffles to fit the damper to duct size. Baffles shall not exceed 6".

.8 Where ultra-low leakage dampers are specified the blade edges shall be fitted with replaceable, snap-on, inflatable seals to limit damper leakage to 6 CFM per square foot for dampers in excess of sixteen inches square at 1 inch of WC.

.9 Individual damper sections shall not be larger than 48" X 60". Provide a minimum of one damper actuator per section.

.10 All proportional control dampers shall be opposed or parallel blade type as hereinafter specified and all two-position dampers shall be parallel blade types.

.11 Combination automatic smoke control dampers, where indicated on the plans, shall conform to the UL555S Leakage Class specified.

PART 3 EXECUTION

3.1 Coordination

A. All work shall be performed at times acceptable to the Engineer/Construction Manager. Provide work schedule at the start of the job for the approval of the Engineer / Construction Manager. Schedule shall show when all staff and sub-contractors shall be on-site.

B. Organize all your sub-contractors and ensure that they maintain the schedule.

C. Full cooperation shall be shown with other sub-contractors to facilitate installations and to avoid delays in carrying out the work.

D. Notify Engineer/Construction Manager of any changes to the schedule. Send any schedule changes and weekly progress reports via e-mail to Engineer/Construction Manager.

E. Where, in the judgment of the Engineer/Construction Manager, the work could disrupt the normal operations in or around the building, contractor shall schedule work to eliminate or minimize interference.

F. When connecting to the existing systems, advise the Engineer/Construction Manager and obtain permission to so. Perform work at a time acceptable to the Engineer/Construction Manager and Owner.

3.2 Control Wiring

A. Provide conduit and outlet boxes per div 16 specifications.

B. Install remote push-button stations and/or control devices interposed in the control wiring.

C. Provide over-current protection for all control and interlock wiring as specified in NFPA (70.1971) Art. 240-5 (a), Exception #4 and Art. 430-72, Exception.

D. Line voltage and exposed low voltage control wiring shall be run in conduit.

E. No splices will be allowed except at junction boxes and control centers.

F. No two wires of the same color shall be run in one conduit unless wires of the same color are properly tagged at both ends and any splice points. Do not change colors at splice points.

G. Control wiring: Identify Star Center DDC controls communication wiring. Provide identification/labels every twenty feet and one foot on each side of wall penetrations. Cables shall be properly identified/tagged as to the control point.

3.3 System Design and Responsibility

A. The drawings do not show conduit size or wire type to link the various elements of the system. The BAS contractor is responsible for proper sizing. Refer to Div 16 for Conduit and wiring.

B. The Contractor is responsible for supplying sufficient Controllers of all types to meet the intent of the specification.

C. The quantity and point content of the Controllers must be approved by the Engineer prior to point installation.

D. Graphics shall be similar to (Existing) Distech Jace controls systems. Refer to Part 4. Graphics shall be submitted to Owner for review and comment prior to final implementation, and shall be completed prior to Commissioning and Owner Training

3.4 Products

A. Materials and equipment shall be essentially the catalogued products of manufacturers regularly engaged in production of such materials or equipment and shall be manufacturer's latest standard design that complies with the specification requirements.

B. Where two units of the same class of equipment are required, these units shall be products of a single manufacturer, and the component parts of the system shall be the products of a single manufacturer.

C. Each major component of equipment shall have the manufacturer's name and address and the model and serial number on a nameplate securely attached in a conspicuous place.

3.5 Electrical Work, Wiring and Safety

A. Electrical work shall be in accordance ANSI/NFPA 70 and the local Electrical Code.

B. Based on project location, Regional Regulation Compliance Certifications (CSA C22.1) will be required.

C. Electrical wiring, terminal blocks and other high voltage contacts shall be fully enclosed or properly guarded and marked to prevent accidental injury to personnel.

D. All wiring shall conform to the most stringent requirements of the local electrical authority having jurisdiction. Refer to Division 26 00 00 for electrical requirements, codes and regulations.

E. All wiring associated with and required by the BAS shall be the responsibility of this contractor.

a) The term "wiring" shall be construed to include furnishing of wire, conduit, and miscellaneous material and labor as required to install a total working system.

b) If departures from the contract documents are deemed necessary by the contractor, details of such departures, including changes in related portions of the project and the reasons therefore, shall be submitted with the drawings to the Engineer for approval.

3.6 Manufacturer's Recommendations

A. Installation to be to manufacturer's recommendations. Provide printed copies of recommendations with shop drawings or product data.

3.7 Nameplates

A. Nameplates shall be provided for all control items listed or shown in the submittal and approved control diagrams.

B. Each inscription shall identify its function, such as "mixed air controller", "cold deck sensor" in official languages etc. and when applicable, its position.

a) Size of nameplates shall be 1 inch by 3 inches minimum.

b) Lettering shall be minimum ¼ inch high normal black lettering.

c) Submit duplicate samples of identification tags and lists of wording proposed for approval.

3.8 Preliminary Design Review

A. The BAS contractor shall submit a preliminary design document for review. This document shall contain the following information:

a) Provide a description of the proposed system along with a system architecture diagram with the intention of showing the contractors solution to meet this specification.

b) Provide product data sheets and a technical description of all direct digital controller hardware required to meet specifications listed herein.

c) Provide an overview of the BAS contractor's local/branch organization, local staff, recent related project experience with references, and local service capabilities.

d) Provide information on the BAS contractor's project team including project organization, project manager, project engineer, programmers, project team resumes, and location of staff.

e) Project Schedule of work indicating:

.1 Intended sequence of work items

.2 Start date of each work item

.3 Duration of each work item

.4 Planned delivery dates for ordered material and equipment and expected lead times

.5 Milestones indicating possible restraints on work by other trades or situations

3.9 Submittals

A. Refer to Section 01300 for submittal requirements

.1 Manufacturer's description and technical data such including product specifications and installation and maintenance instructions for items listed herein: Direct digital controllers (BACnet and LonWorks)

Sensors and Transmitters

Transducers

Actuators

Automatic Control Valves

Automatic Control Dampers

Air Flow Stations

Control panels

Operator interface equipment

Ancillary equipment such as relays, power supplies and wiring

B. Riser diagrams showing control network layout, communication protocol, and wire types

C. Control System Shop Drawings

.1 Schematic diagram of each controlled system. Label control points with point names.

.2 Bill of Material for each controlled system. List each control system element in a table. Show element name, type of device, manufacturer, model number, and product data sheet number.

.3 Specification sheets for each item including manufacturers descriptive literature, drawings, diagrams, performance and characteristic curves, manufacturer and model number, size, layout, dimensions, capacity, etc.

.4 Control schematics with narrative description and control descriptive logic fully showing and describing operation and/or manual procedures available to operating personnel to achieve proper operation of the building, including under complete failure of the BAS.

.5 Shop drawings for each input/output point showing all information associated with each particular point including sensing element type and location; details of associated field wiring schematics and schedules; point address; software and programming details associated with each point; and manufacturer's recommended installation instructions and procedures for each type of sensor and/or transmitter.

3.10 As-built Documentation (Operating and Maintenance (O&M) Manuals)

A. As-built documentation shall consist of PDF electronic files information described below:

B. The final documentation package shall include:

.1 All control drawings.

.2 Manufacturer’s technical data sheets for all hardware and software.

.3 Factory operating and maintenance manuals with any customization required.

.4 Programming and front-end software and each controller’s database. Hard copy output of programming is not necessary.

.5 Provide clear, concise, printed descriptions of all control sequences in the working language.

.6 Text files shall be in Microsoft Word format.

.7 Copy of all graphics files

C. Provide electronic instruction and reference manual to the Facility Engineer.

.1 Manuals and specifications shall be furnished which provide full and complete coverage of the following subjects.

.2 Operational Requirements: This document shall describe in concise terms, all the functional and operational requirements for the system and its functions that have been implemented. It shall be written using common terminology for building operation staff and shall not presume knowledge of digital computers, electronics or in-depth control theory.

.3 System Operation: Complete step by step procedures for operation of the system, including required actions at each operator station; operation of computer peripherals; input and output formats; and emergency, alarm and failure recovery. Step-by-step instructions for system startup, back-up equipment operation, and execution of all system functions and operating modes shall be provided.

.4 Maintenance: Documentation of all maintenance procedures for all system components including inspection, periodic preventive maintenance, fault diagnosis, and repair or replacement of defective module. This shall include calibration, maintenance, and repair or replacement of all system hardware.

.5 Test Procedures and Reports: The test implementation shall be recorded with a description of the test exercise script of events and documented as test procedures. A provision for the measurement or observation of results, based on the published test specification, forms the test reports. The procedures record and the results of these exercises shall be conveniently bound and documented together.

.6 Configuration Control: Documentation of the basic system design and configuration with provisions and procedures for planning, implementing, and recording any hardware or software modifications required during the installation, test, and operating lifetime of the system. This shall include all information required to ensure necessary coordination of hardware and software changes, data link or message format/content changes, and sensor or control changes in the event system modification are required, and to fully document such new system configurations.

3.11 Manufacturer Training

A. Manufacturer provided training on the use and operation of all products provided within these specifications shall be available for purchase and attendance by the Owner or his designated agent.

B. Such training shall be of the same curriculum as the training courses provided by the manufacturer to the Contractor.

C. A manufacturer certified instructors shall give all training classes.

D. A list of training courses with detailed course outline and duration with the associated cost shall be provided as part of the BAS submittals.

3.12 ACTUATORS

A. General: Mount actuators and adapters according to manufacturer's recommendations.

B. Electric and Electronic Damper Actuators.

.1 Mount actuators directly on damper shaft or jackshaft unless shown as a linkage installation.

.2 Link actuators according to manufacturer's recommendations.

.3 For low-leakage dampers with seals, mount actuator with a minimum 5° travel available for damper seal tightening.

.4 To compress seals when spring-return actuators are used on normally closed dampers, power actuator to approximately the 5° open position, manually close the damper, and then tighten linkage.

.5 Check operation of damper-actuator combination to confirm that actuator modulates damper smoothly throughout stroke to both open and closed positions.

.6 Provide necessary mounting hardware and linkages for actuator installation.

.7 Connect actuators to valves with adapters approved by actuator manufacturer

3.13 Acceptance and Warranty

A. An acceptance test of the completed system in the presence of the STAR Center Facility Engineer and Engineer of record shall be performed. When the system performance is deemed satisfactory by these observers and all record (as-built) drawings have been received by the Owner, that part of the system shall be accepted for beneficial use and shall be considered complete.

B. All control hardware, software, and firmware delivered to the Installer by the Controls Manufacturer shall be warranted by the Controls Manufacturer for a period of one (1) year following the date of completion. Defects arising during this warranty period shall be corrected without cost to the Owner.

C. Warranty: The control system shall be warranted to be free from defects in both material and workmanship for a period of one (1) year of normal use and service, with the exception of control valve actuators with a two (2) year warranty. This warranty shall become effective the date the owner accepts the system.

3.14 Spares

A. Spare Parts: Provide a spare unit for each type of field module type used in this project and as specified herein. Spares shall be provided for the following items:

Niagara Edge 534 Controller…….. one (1)
Temperature Sensors (RM) ..... 10% and/or minimum of one (1)
Pressure Sensors (PT) ..... 10% and/or minimum of one (1)
Duct Temperature Sensors ..... 10% and/or minimum of one (1)
Valve Actuators (Belimo) ..... 10% and/or minimum of one (1)
Damper Actuators (Belimo)..... 10% and/or minimum of one (1)
Relays ..... 10% and/or minimum of one (1)

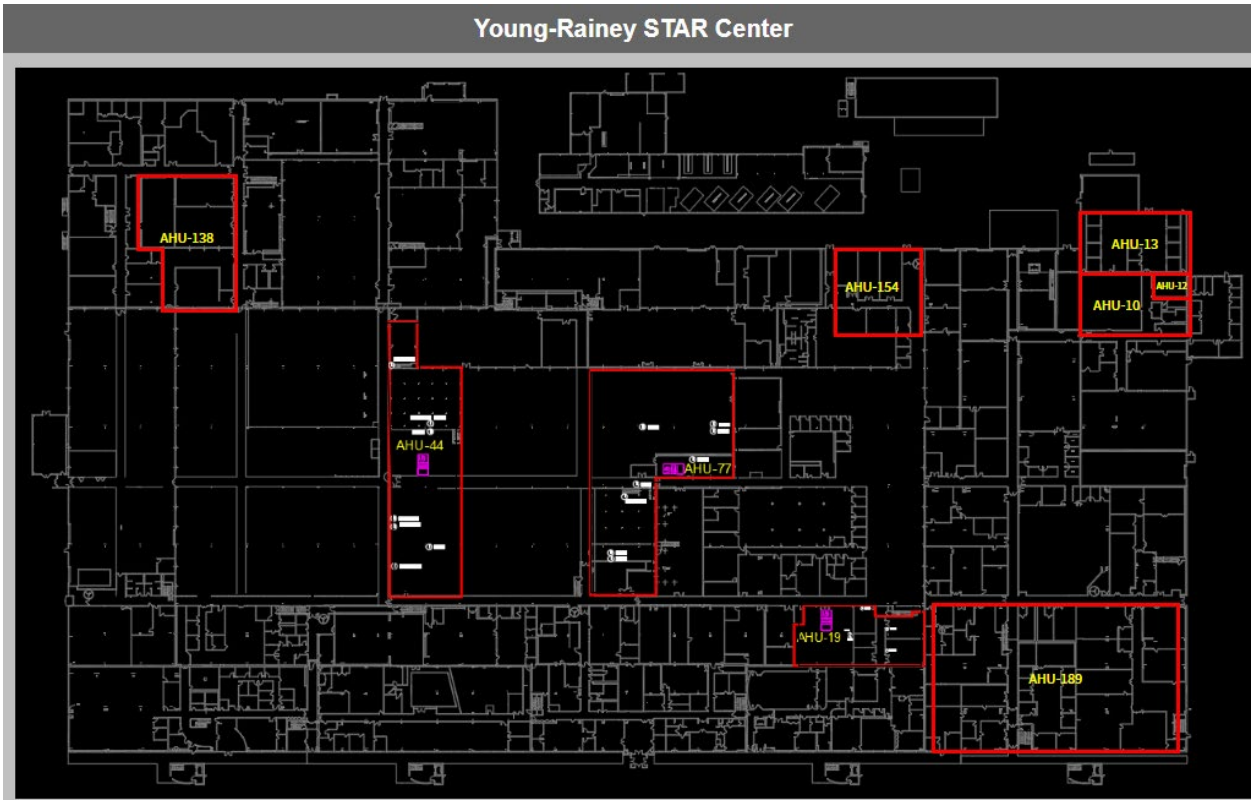
B. Spares shall be on-site and stored under lock and key prior to substantial completion and shall be turned over to the Owner in operating condition at the end of the warranty period. These spares may be used for repairs during the warranty period but must be replaced within 30 days of use by the manufacturer.

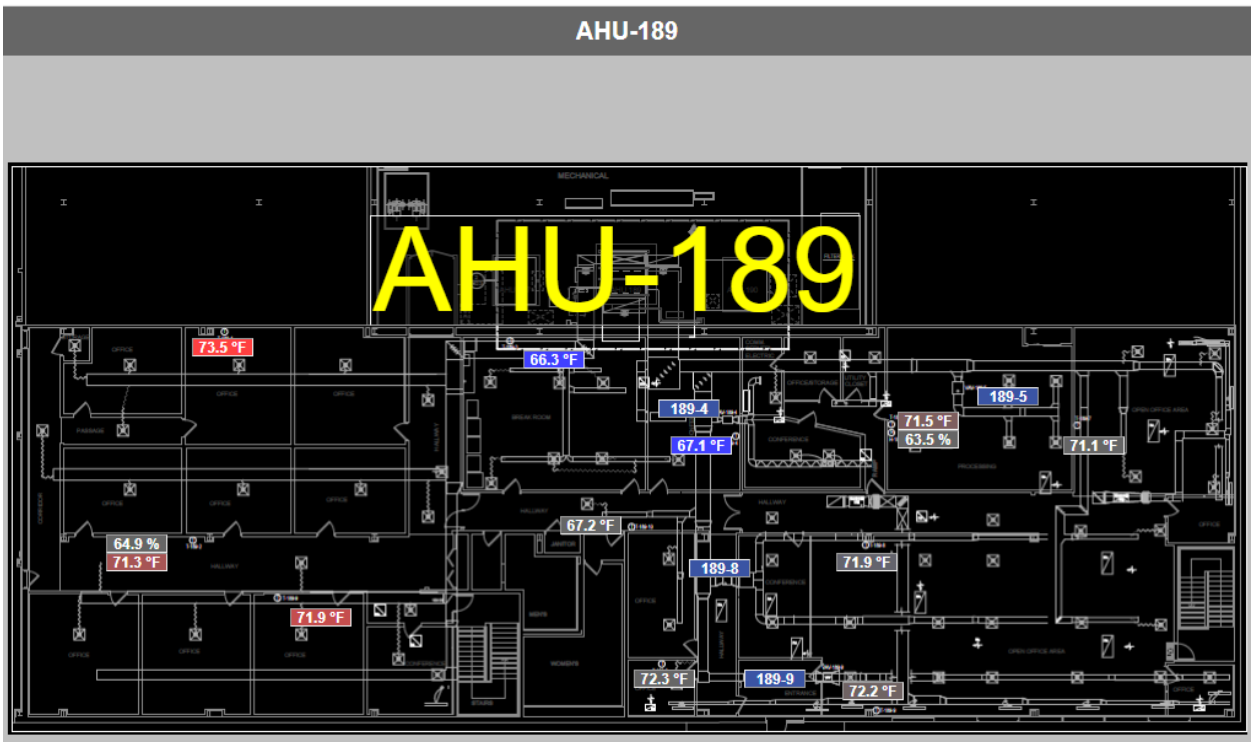
PART 4 SEQUENCE OF OPERATION

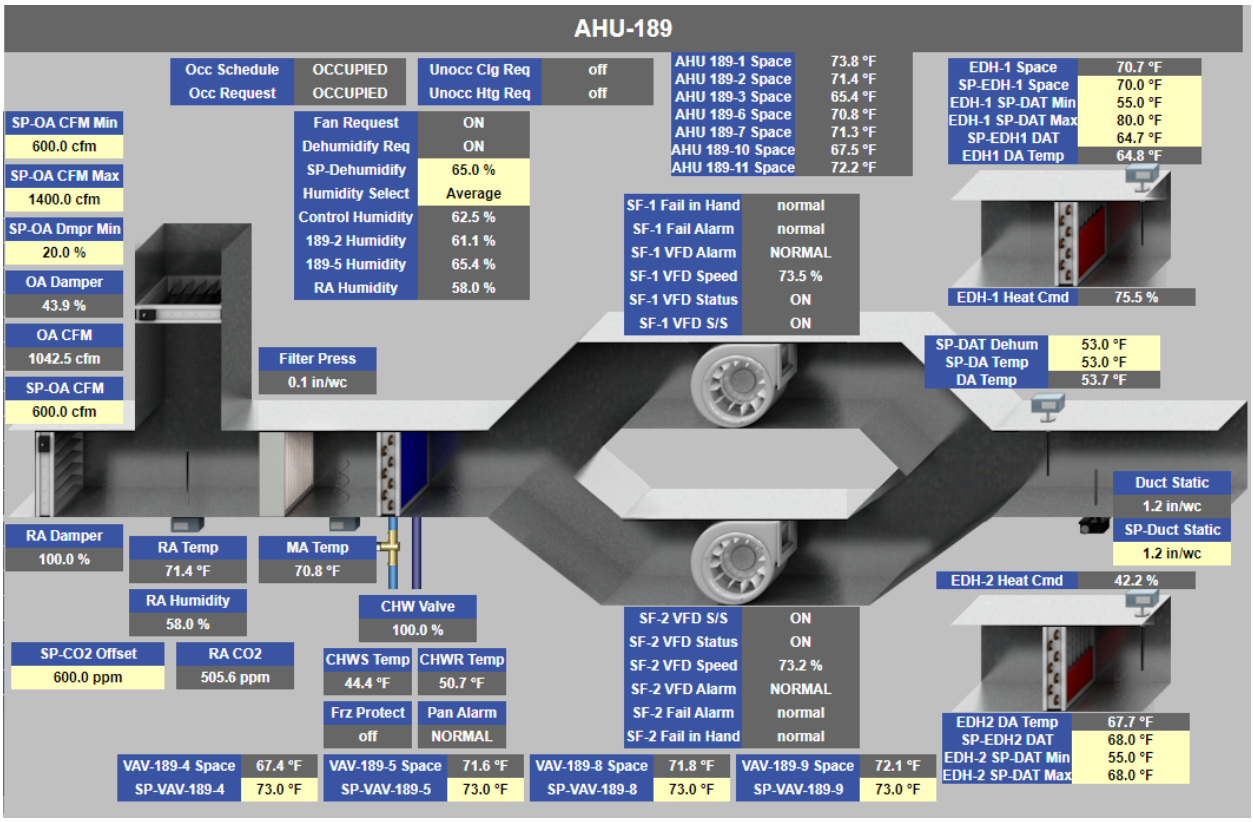
4.1 Sequence of Operation

A. **Refer to mechanical controls drawings for sequence of operations.**

B. **Existing Distech Jace Graphic screenshots:**


Young-Rainey STAR Center
AHU-138
AHU-154
AHU-13
AHU-12
AHU-10
AHU-44
AHU-77
AHU-19
AHU-189





END OF SECTION

SECTION 15990 - TESTING, ADJUSTING, AND BALANCING

PART 1 - GENERAL

1.01 SUMMARY STATEMENT

A. Test and balance of HVAC systems supply and return systems shall be performed by an independent test and balance agency certified by AABC or NEBB. The cost of the TAB services are a part of the base bid for this Contract. The TAB services provided herein shall be completed and the written report submitted to the Engineer a minimum of 15 days prior to Substantial Completion of each project phase.

1.02 RELATED DOCUMENTS

A. The requirements set forth in the Bidding Requirements and the Contractual Conditions of Division One shall apply to this Section.

B. The requirements of Section 15010, Basic Mechanical Requirements, shall be adhered to in the test and balance work which shall include Section 15260, Piping Insulation; Section 15515, Hydronic Specialties; Section 15890, Ductwork; and Section 15975, Building Management and Automatic Temperature Control System.

1.03 GENERAL

A. Scope

1. Description

a. The Contractor shall, at the Contractor's expense, procure the services of an independent testing and balance firm which specializes in the balancing and testing of heating, ventilating and air conditioning systems. This specialty services firm shall balance, adjust and test water circulation, air moving equipment, air distribution and/or exhaust systems as herein specified.

b. Acceptable manufacturers to perform work described within this system are:

I. Pro-Tech Diversified Services (SBE registered)

II. The Phoenix Agency

III. Southern Independent Testing

IV. Test and Balance Corp.

c. It is a requirement of Pinellas County to utilize Small Business Enterprise (SBE) companies. The firms listed above may not all be SBE registered with Pinellas County Government Economic Development. The Contractor shall employ the services of an

SBE firm(s) registered with Pinellas County Government Economic Development to meet the requirement.

d. Test and balance work shall not begin until all systems have been completed and are in full working order to the satisfaction of the Project Engineer and the Owner. This Contractor shall make all preliminary tests and adjustments before advising in writing that test and balance work is ready to begin and shall place all systems and equipment into full operation during each working day of testing and balancing.

2. Replacement pulleys (adjustable and non-adjustable), additional balancing dampers, pressure taps, balancing valves, cocks and fittings, etc., required to effect proper air and water balance shall be furnished and installed by this Contractor at no additional cost to the Owner. This Contractor shall do this work as soon as possible so as not to delay the completion of the test and balance work.

3. Air filters shall be replaced and strainers shall be cleaned by this Contractor before proceeding with test and balance and thereafter as required by the test and balance firm.

4. Systems shall be placed into service using approved start up procedures. This (mechanical) contractor shall be responsible for proper initial setting and adjustment of HVAC equipment, air handlers, VAV boxes, exhaust fans, etc. furnished and installed by him.

5. This Contractor shall provide test openings as required; shall operate HVAC equipment and provide trades persons to assist and make adjustments for test and balance during the process.

6. The Contractor's test and balance firm shall periodically visit the site during construction of the HVAC system. No less than two visits per phase will be made. Should methods, materials or workmanship being used adversely affect balancing and adjusting work, the test and balance agency shall report its findings in writing to the Contractor with recommendations for correction.

7. The Contractor's test and balance firm has agreed or shall agree to carry out the test and balance in accordance with the AABC National Standards for Total Systems Balance (7th Edition) or the NEBB Procedural Standards for Testing, Adjusting and Balancing or Environmental Systems (Ninth edition, and in conformance with ASHRAE Handbook, 2019, Chapter 39, Testing, Adjusting and Balancing and as outlined in this Specification Section.

8. This Contractor shall furnish to the testing and balancing agency a complete set of plans and specifications, addenda, shop drawings, schedules and change orders as may be required.

B. Quality Assurance

1. All instruments used shall be accurately calibrated within six months of testing and balancing and shall be maintained in good working order.

3. In the event of dispute, the Owner or Contractor or Project Engineer may choose to provide verification of test and balance reports, and such verification shall be by a third independent agency selected by the Engineer. Reports found to be inaccurate will be disallowed, and the Contractor's test and balance firm will be required to repeat operations under the supervision of the third independent agency until accurate reports are completed and agreed upon, provided the Contractor's TAB firm is found to be at fault in the judgment of the Engineer. The cost of disputed test and balance work shall be borne by the Owner or Contractor (whichever is found to be at fault).

C. Submittals

1. The test and balance firm will submit two electronic copies of data for the testing and balancing for the approval of the Project Engineer and Owner.

2.01 EXECUTION

A. Air Balance

1. This Contractor shall prepare the air systems for balancing and verify same for test and balance firm as follows:

a. Mechanically check fans, blowers and air handling equipment and make such available to operate under design conditions.

b. Set volume dampers, air dampers and vanes in their normal position.

c. Mechanically check controls and make available to operate under design conditions.

d. Mark damper shafts and locking devices to accurately represent the position of their respective dampers when in optimum position.

2. The Contractor's test and balance firm shall perform the following tests and balance system in accordance with these requirements:

a. Test and adjust fan RPM to design requirements.

b. Test and record motor full load amperes. Verify the sizing and settings of overloads as well as document same on reports. Coordinate with Division 16 to install and size overloads to NEC and manufacturers requirements.

c. Make pitot tube traverse of main supply and return ducts and obtain design CFM at fans.

d. Test and record system total pressures, suction and discharge.

e. Test and adjust system for design CFM recirculated air.

f. Test and adjust system for design CFM outside air.

g. Test and record coil entering air temperatures (D.B. heating and cooling).

h. Test and record coil entering air temperatures (W.B. cooling).

i. Test and record coil leaving air temperatures. (D.B. heating and cooling).

j. Test and record coil leaving air temperatures (W.B. cooling).

k. Adjust all main supply and return air ducts to proper design CFM.

l. Adjust all zones to proper design CFM (±10%), supply and return. Show all DDC readings at time of measured readings. Coordinate with Controls Contractor to resolve differences.

m. Test and adjust each diffuser, grille, and register to within ±10% of design requirements.

n. Each grille, diffuser and register shall be identified as to location, area and system.

o. Test and record all room temperatures, D.B. and W.B. Test shall be made near room thermostat where installed at four feet above floor.

3. Size, type and manufacturer of diffusers, grilles, registers, and all tested equipment shall be identified and listed. Manufacturer's ratings on all equipment shall be used to make required calculations.

4. Readings and tests of diffusers, grilles and registers, shall include test resultant velocity, required CFM and test resultant CFM after adjustments.

5. In cooperation with the control manufacturer's representative, the test and balance firm shall set adjustments of automatically operated dampers to operate as specified, indicated, and/or noted.

6. Testing and balance firm shall check all controls for proper calibrations and list all controls requiring adjustment by control installers.

7. Diffusers, grilles and registers shall be adjusted by the test and balance firm to minimize drafts in all areas.

8. The test and balance firm shall verify duct work leakage tests. Data from duct work leakage tests shall be tabulated and included with the test and balance report. Leakage tests per SMACNA requirements shall be performed.

9. Tested section of duct work shall be marked by this Contractor and verified by the test and balance firm. All tests and repairs shall be made before duct sections are concealed or insulated.

B. Water Balance

1. This Contractor shall prepare the new and existing water systems for balancing and verify same to test and balance agency in the following manner:

   a. Open all valves to full open position. Close all by-pass valves. Set modulating valve to full coil flow.

   b. Check all strainers and, if required, clean same.

   c. Examine water in system and determine if water has been treated and cleaned. If water appears dirty, test and balance work shall stop and this Contractor shall reclean system as specified in the Project Specifications.

   d. Check expansion tanks to determine if they are not air bound and if the system is completely full of water.

   e. Check all air vents at high points of water system and determine if all are installed and operating freely. Make sure all air is removed from the system.

   f. Set all temperature controls so all coils are calling for full cooling.

   g. Complete air balance work must have been accomplished and all work adjusted and corrected before actual water balance is complete.

2. The test and balance firm shall perform the following:

   a. Check and record water temperatures at inlet side of coils.

   b. Proceed to balance each water coil.

   c. Upon completion of flow readings and adjustments at coils, mark all settings and record data.

   d. Install pressure gages on coils, read pressure drop through coil at set flow rate on-call for full cooling.

   e. Record settings and readings on all gauges as found when testing began, and as left when testing is complete.

   f. Record and check the following items at each cooling element:

1. "Inlet water" temperature.
2. "Leaving water" temperatures.
3. Pressure drop of each coil.

C. Equipment

1. The test and balance agency shall submit, as part of its report, complete identification and operating data on the following:
   a. Air handling units.
   b. New and existing air devices (grilles, registers, diffusers).

D. Certification

1. The test and balance report to the Project Engineer and to the Owner shall be signed, "sealed" and certified by a certified balancing agent in the State of Florida whose specialty discipline is HVAC, together with a signed statement that this balancer's specialty is HVAC.

- SECTION END -

SECTION 16010 - BASIC ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Basic Electrical Requirements specifically applicable to Division 16 Sections, in addition to Division 1—General Requirements.

1.02 INTENT

A. It is the intention of these specifications and drawings to call for finished work, tested, and ready for operation. Wherever the word "provide" is used, it shall mean "furnish and install complete and ready for use."

B. Minor details not usually shown or specified, but necessary for the proper installation and operation, shall be included in the work, the same as if herein specified or shown.

1.03 SURVEYS AND MEASUREMENTS

A. Base all measurements, both horizontal and vertical from established bench marks. All work shall agree with these established lines and levels. Verify all measurements at site and check the correctness of same as related to the work. All material take-offs for the site shall be field measured prior to bids.

1.04 DRAWINGS

A. Drawings are diagrammatic and indicate the general arrangement of systems and work included in the contract. Drawings are not to be scaled. The architectural drawings and details shall be examined for exact location of fixtures and equipment. Where they are not definitely located, this information shall be obtained from the Engineer.

B. If directed by the Engineer, the Contractor shall, without extra charge, make reasonable modifications in the layout as needed to prevent conflict with work of other trades or for proper execution of the work.

C. At the time of each shop drawing submission, the Contractor shall call the Engineer's attention (in writing) to, and plainly mark on shop drawings, any deviations from the Contract Documents.

D. Samples, drawings, specifications, catalogs, submitted for approval, shall be properly labeled indicating specific service for which material or equipment is to be used, location, section and article number of specifications governing, Contractor's name, and name of job. All equipment shall be labeled to match labeling on contract documents.

E. Catalogs, pamphlets, or other documents submitted to describe items on which approval is being requested, shall be specific and identification in catalog, pamphlet, etc. of item submitted shall be clearly made in ink. Data of a general nature will not be accepted.

F. Approval rendered on shop drawings shall not be considered as a guarantee of measurements or building conditions. Where drawings are approved, said approval does not mean that drawings have been checked in detail; said approval does not in any way relieve the Contractor from his responsibility or necessity of furnishing material or performing work as required by the contract drawings and specifications.

G. All shop drawings shall be submitted to the Engineer by Contractor no later than 30 days from the day of contract award.

H. Failure of the Contractor to submit shop drawings in ample time for checking shall not entitle him to an extension of contract time, and no claim for extension by reason of such default will be allowed.

I. Submit all Division 16 submittals at one (1) time in one (1) integral group. Piece-by-piece submission of individual items will not be acceptable. Engineer may check contents of each submittal set upon initial delivery; if not complete as set forth herein, submittal sets may be returned to Contractor without review and approval and will not be accepted until made complete.

J. At the close of the job, prior to final review, five (5) bound copies of the following shall be submitted by transmittal letter to the Engineer for review and acceptance.

1. Equipment warranties
2. Contractor's warranty
3. Parts list and manuals for all equipment
4. Operating Instructions (in writing)
5. Written instructions on maintenance and care of the system

1.05 REFERENCES

A. ANSI/NFPA 70—National Electrical Code.

B. NFPA 101—Life Safety Code.

1.06 SUBMITTALS

A. Submit under provisions of Division 1.

B. Proposed Products List: Include Products specified in the following Sections, but not limited to:

1. Section 16440 ....Disconnect Switches.

C. It shall be understood that review of shop drawings by the Engineer does not supersede the requirement to provide a complete and functioning system in compliance with the Contract Documents.

1.07 SUBSTITUTIONS

A. Materials and equipment are specified herein by a single or by multiple Manufacturers to indicate quality and performance required. The drawings are based upon equipment scheduled on drawings and specified. If another Manufacturer is considered for substitution during the bidding process, the Electrical Contractor shall be responsible for coordinating all electrical, mechanical, structural, or architectural changes. Comparable equipment Manufacturers which are listed as equals shall be considered as substitutes. Manufacturers other than the basis of design shall submit a catalog information and 1/4" scale plan and section drawings showing proper fit and all clearances for maintenance items.

B. Substitutions of other Manufacturer's will be considered for use if, in the Engineers opinion, the item requested for substitution is equal to that specified. The Contractor shall provide to the Engineer a typed comparative list of the basis of design and the proposed substitute.

Request for approval of substitutions or equals prior to bid must be made in writing. The approval of any substitutions or equals prior to bid shall not be construed as a shop drawing approval. The substitute or equal must be submitted as described in the specifications and meet all the requirements of the specifications and drawings.

C. All requests for substitutions shall be submitted as described in paragraph 1.07, B., and specifically indicate any and all differences or omissions between the product specified as basis of design and the product proposed for substitution.

D. Where the Contractor proposes to use an item of equipment other than that specified or detailed on the drawing, which requires any redesign of the structure, partitions, foundations, piping, wiring, or any other part of the mechanical or electrical, all such redesign, and all new drawings and detailing required therefore, shall be prepared by the Subcontractor at his own expense and submitted to the Engineer for approval.

E. Where such approved deviation requires quantity and arrangement of equipment from that specified or indicated on the drawings, any other additional equipment required by the system, at no additional cost to the Owner.

1.08 COOPERATION WITH OTHER TRADES

A. Give full cooperation to other trades and furnish in writing to the General Contractor, with copies to the Engineer, any information necessary to permit the work of all trades to be installed satisfactorily and with the least possible interference or delay.

B. When work installed under this Division will be in close proximity to, or will interfere with work of other trades, assist in working out space conditions to make a satisfactory adjustment. If so directed by the Engineer, prepare composite working drawings and sections at a suitable scale not less than 1/4" = 1'0", clearly showing how work is to be installed in relation to the work of other trades. If the work is installed before coordinating with other trades, or so as to cause any interference with work of other trades, make all the necessary changes in work to correct the condition without extra charge.

C. Furnish to other trades, as required, all necessary templates, patterns, setting plans, and shop details for the proper installation of work and for the purpose of coordinating adjacent work.

1.09 PROTECTION

A. Protect all work and material provided under this Division from damage. All damaged equipment work or material provided under this Division shall be replaced with new. Rebuilts are not acceptable.

B. Protect all work and equipment until inspected, tested, and accepted. Protect work against theft, injury, or damage; and carefully store material and equipment received on site which are not immediately installed. Close open ends of work with temporary covers or plugs during storage and construction to prevent entry of obstructing material.

1.10 SCAFFOLDING, RIGGING, AND HOISTING

A. Provide all scaffolding, rigging, hoisting, and services necessary for erection and delivery into the premises of any equipment and apparatus furnished. Remove same from premises when no longer required.

1.11 REMOVAL OF RUBBISH

A. This Contractor shall at all times keep premises free from accumulations of waste materials or rubbish caused by his employees or work. At completion of work he shall remove all his tools, scaffolding, materials, and rubbish from the building and site. He shall leave the premises and his work in a clean, orderly, and acceptable condition.

1.12 SAFETY

A. This Contractor shall comply with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.333), Title 29—Labor, Chapter XIII, Bureau of Standards, Department of Labor, Part 1518—Safety and Health Regulations for Construction; and that his housekeeping and equipment be maintained in such a manner that they comply with the Florida Industrial Commission Safety Code and Regulations of the Federal Williams—Steiger Occupational Safety and Health Act of 1970 (OSHA), wherein it states that the Contractor shall not require any laborer or mechanic employed in the performance of the contract to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety.

1.13 SUPERVISION

A. This Contractor shall provide a competent, experienced, full time superintendent who is acceptable to the Engineer and Owner, and who is authorized to make decisions on behalf of the Contractor.

1.14 MATERIAL AND WORKMANSHIP

A. All materials and apparatus required for the work, except as specifically specified otherwise, shall be new, of first-class quality, and shall be furnished, delivered, erected, connected and finished in every detail, and shall be so selected and arranged as to fit properly into the building spaces. Where no specific kind or quality of material is given, a first-class standard article as approved by the Engineer shall be furnished. Refer to substitutions in this Section.

B. Unless otherwise specifically indicated on the plans or specifications, all equipment and materials shall be installed with the approval of the Engineer in accordance with the recommendations of the Manufacturer. This includes the performance of such tests as the Manufacturer recommends.

1.15 QUIET OPERATION AND VIBRATION

A. All work shall operate under all conditions of load without any sound or vibration which is objectionable in the opinion of the Engineer and the Owner. In case of moving machinery, sound, or vibration noticeable outside of room in which it is installed, or annoyingly noticeable inside its own room, will be considered objectionable. Sound or vibration conditions considered objectionable by the Engineer and the Owner shall be corrected in an approved manner at no additional expense to the Owner.

1.16 FOUNDATIONS, SUPPORTS, PIERS, ATTACHMENTS

A. This Contractor shall furnish and install all necessary foundations, supports, pads, bases and piers required for all equipment furnished under this Division, and shall submit drawings to the Engineer for approval before purchase, fabrication or construction of same.

B. For all floor mounted equipment, provide concrete pads which extend six inches (6") beyond equipment base in all directions with top edge chamfered. Inset six inches (6") steel dowel rods into floors to anchor pads. Shop drawings of all foundations and pads shall be submitted to the Engineer for approval before same are constructed.

C. Construction of foundations, supports, pads, bases, and piers where mounted on the floor, shall be the same materials and same quality of finish as the adjacent and surrounding flooring material.

D. All equipment, unless shown otherwise, shall be securely attached to the building structure in an approved manner. Attachments shall be of a strong and durable nature and any attachments that are, in the opinion of the Engineer, not strong enough shall be replaced as directed.

1.17 REGULATORY REQUIREMENTS

A. Conform to applicable Codes and Standards as follows:

1. Standard:

a. Certain standard materials and installation requirements are described by reference to standard specifications. These standards are as follows:

NEMA.....National Electrical Manufacturers Association.

UL .....Underwriters Laboratories.

ANSI.....American National Standards Institute.

For additional standards and requirements see other sections of the specifications.

Whenever a reference is made to a standard, installation and materials shall comply with the latest published edition at the time project is bid unless otherwise specified herein.

2. Codes and Rules:

a. All material furnished and all work installed shall comply with the following codes as they apply to this project:

NFPA 70 and NFPA 101.

- Regulations of the Florida Industrial Commission Concerning Safety.
- Applicable County, State, and Local Building Codes.
- Local and State Fire Marshal Rules and Regulations.
- Occupational Safety and Health Agency Standards (OSHA).
- Florida State Board of Health Rules and Regulations.
- Florida Building Code – Eighth Edition (2023)

Applicable codes shall be those adopted by the authority having jurisdiction at the time project is bid.

3. Permits, Fees and Inspections

   a. The Contractor shall give all necessary notices, obtain all permits and pay all government fees, sales taxes and other costs, including utility connections or extensions, in connection with this work; file all necessary approvals of all governmental departments having jurisdiction.

   b. Obtain all required certificates of inspection for his work and deliver to the Owner/Engineer the same certificates before request for acceptance and final payment for the work.

   c. The Contractor shall include in the work, without extra cost to the Owner, any labor, materials, services, apparatus and drawings required to comply with all applicable laws, ordinances, rules and regulations.

   d. The Contractor shall inform the Engineer of any work or materials which conflict with any of the applicable codes, standards, laws and regulations before submitting his bid..

1.18 PROJECT/SITE CONDITIONS

A. Install Work in locations shown on Drawings, unless prevented by Project conditions.

B. Prepare drawings showing proposed rearrangement of Work to meet Project conditions, including changes to Work specified in other Sections. Obtain permission of Engineer before proceeding.

C. The Contractor shall inform the Engineer of any work or materials which conflict with any of the applicable codes, standards, laws and regulations before submitting his bid.

D. The scope of the work included under this Division of the Specifications shall include complete electrical systems as shown on the plans and as specified herein. The General Conditions and Special Conditions of these specifications shall form a part and be included under this Section of the Specifications. Provide all supervision, labor, material, equipment, machinery, factory trained personnel, and any and all other items necessary to complete the electrical systems. All items of equipment are specified in the singular; however, provide and install the number of items of equipment as indicated on the drawings, and as required for complete systems.

1.19 SEQUENCING AND SCHEDULING

A. Construct Work in sequence under provisions of Division 1.

1.20 LICENSE

A. The Subcontracting Firm for the electrical and systems installation shall be licensed by the State of Florida and the local authorities (Pinellas County Contractors Licensing Board), regularly engaged in the installation of electrical systems and other related equipment. The Subcontracting Firm shall be familiar with all local conditions including interpretations, codes and shall have at least 5 years of successful installation experience on similar projects of the same magnitude and scope.

The Subcontracting Firm shall list at least three projects it has successfully completed over the last five years for proof of experience of this caliber. This list shall be included with submittals for review by Engineer. The Subcontracting Firm shall hold a Florida State Certified Electrical Contractor license for this project. The Subcontracting firm for the fire alarm system shall be a certified "EF" installer.

1.21 AS-BUILT DRAWINGS

A. This Contractor shall provide AutoCad as-built drawings (Electronic) on flash drive before final payment will be issued.

- SECTION END -

SECTION 16060 - ELECTRICAL DEMOLITION FOR REMODELING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Electrical Demolition.

PART 2 - PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. Materials and equipment for patching and extending work: As specified in individual Sections.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify field measurements and circuiting arrangements are as shown on drawings.

B. Verify that abandoned wiring and equipment serve only abandoned facilities.

C. Demolition drawings are based on casual field observation and existing record documents. Report discrepancies to the Engineer before disturbing existing installation.

D. Beginning of demolition means installer accepts existing conditions.

3.02 PREPARATION

A. Disconnect electrical systems in walls, floors, and ceilings scheduled for removal.

B. Coordinate utility service outages with utility company and school facility.

C. Provide temporary wiring and connections to maintain existing systems in service during construction. When work must be performed on energized equipment or circuits, use personnel experienced in such operations.

D. Existing Electrical Service and Distribution System: Maintain existing system in service. Disable system only to make switchovers and connections. Obtain permission from the Owner at least one week before partially or completely disabling system. Minimize outage duration. Make temporary connections to maintain service in areas adjacent to work area.

E. Existing Fire Alarm System: Maintain existing system in service. Disable system only to make switchovers and connections. Notify the Owner at least one week before partially or completely disabling system. Minimize outage duration. Make temporary connections to maintain service in areas adjacent to work area. Relocate system to temporary office location. Extend all existing and temporary fire alarm circuit and control wiring to this location.

3.03 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK

A. Demolish and extend existing electrical work under provisions of Division 1 and this Section.

B. If any conflicts arise in the field as to which equipment, ductwork, etc., is to be removed, then this Contractor shall notify the Owner/Engineer in writing and shall include a sketch and description of the field conflict for further direction.

C. In areas where demolition is required of this Contractor, then this Contractor shall be responsible for all phases of demolition, including, but not limited to, removal, storage, and reinstallation of items to remain.

D. Remove, relocate, and extend existing installations to accommodate new construction.

E. Remove abandoned wiring to source of supply.

F. Remove exposed, abandoned conduit, including abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors and patch surfaces.

G. Disconnect and remove electrical devices and equipment serving utilization equipment that has been removed.

H. Repair adjacent construction and finishes damaged during demolition and extension work.

I. Maintain access to existing electrical installations which remain active. Modify installation or provide access panel as appropriate.

J. Extend existing installations using materials and methods compatible with existing electrical installations, or as specified.

K. Coordinate with roofer and assist in removal of all roof mounted electrical conduit devices, equipment, etc., to be removed as indicated on the roofing drawings and HVAC drawings.

3.04 CLEANING AND REPAIR

A. Clean and repair existing materials and equipment which remain or are to be reused.

B. Panelboards: Clean exposed surfaces and check tightness of electrical connections. Replace damaged circuit breakers and provide closure plates for vacant positions. Provide typed circuit directory showing revised circuiting arrangement.

3.05 INSTALLATION

A. Install relocated materials and equipment under the provisions of Division 1.

- SECTION END -

SECTION 16111 - CONDUIT

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Metal Conduit.

B. Flexible Metal Conduit.

C. Liquidtight Flexible Metal Conduit.

D. Electrical Metallic Tubing.

E. Nonmetal Conduit.

F. Fittings and Conduit Bodies.

1.02 RELATED SECTIONS

A. Section 16130.....Boxes.

B. Section 16170.....Grounding and Bonding.

C. Section 16190.....Supporting Devices.

D. Section 16195.....Electrical Identification.

1.03 REFERENCES

A. ANSI C80.1—Rigid Steel Conduit, Zinc Coated.

B. ANSI C80.3—Electrical Metallic Tubing, Zinc Coated.

C. ANSI/NEMA FB 1—Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies.

D. ANSI/NFPA 70—National Electrical Code.

E. NECA "Standard of Installation."

F. NEMA TC 2—Electrical Plastic Tubing (EPT) and Conduit (EPC-40 and EPC-80).

G. NEMA TC 3—PVC Fittings for Use with Rigid PVC Conduit and Tubing.

1.04 DESIGN REQUIREMENTS

A. Conduit Size: ANSI/NFPA 70.

1.05 PROJECT RECORD DOCUMENTS

A. Accurately record actual routing of conduits larger than 1-1/4 inches.

B. Accurately record actual routing of all underground conduits.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect, and handle Products to site under provisions of Division 1.

B. Accept conduit on site. Inspect for damage.

C. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.

D. Protect PVC conduit from sunlight.

1.07 PROJECT CONDITIONS

A. Verify that field measurements are as shown on Drawings.

B. Verify routing and termination locations of conduit prior to rough-in.

C. Conduit routing is shown on Drawings in approximate locations unless dimensioned. Route as required to complete wiring system.

D. Contractor shall provide and install conduit for the controls contractor. Coordinate with Div. 15 Contractor

PART 2 - PRODUCTS

2.01 CONDUIT REQUIREMENTS

A. Minimum Size: 3/4 inch homeruns, only with a maximum of 3-phase conductors, one (1) neutral (or more for computer/clean power and lighting circuits), and one (1) equipment ground.

B. Outdoor Locations, Above Grade, Concealed: Use rigid aluminum and liquidtight flexible metal conduit.

C. Wet and Damp Locations: Use rigid steel and liquidtight flexible metal conduit.

D. Dry Locations:

1. Concealed: Use rigid steel, intermediate metal conduit, and electrical metallic tubing.

2. Exposed: Use rigid steel below eight feet and electrical metallic tubing above eight feet.

2.02 METAL CONDUIT

A. Rigid Steel Conduit: ANSI C80.1.

B. Fittings and Conduit Bodies: ANSI/NEMA FB 1; all steel fittings.

2.03 FLEXIBLE METAL CONDUIT

A. Description: Interlocked steel construction.

B. Fittings: ANSI/NEMA FB 1.

2.04 LIQUIDTIGHT FLEXIBLE METAL CONDUIT

A. Description: Interlocked steel construction with PVC jacket.

B. Fittings: ANSI/NEMA FB 1.

2.05 ELECTRICAL METALLIC TUBING (EMT)

A. Description: ANSI C80.3; galvanized tubing.

B. Fittings and Conduit Bodies: ANSI/NEMA FB 1; steel set screw type.

2.06 NONMETALLIC CONDUIT

A. Description: NEMA TC 2; Schedule 40 PVC.

B. Fittings and Conduit Bodies: NEMA TC 3.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install conduit in accordance with NECA "Standard of Installation."

B. Install nonmetallic conduit in accordance with manufacturer's instructions.

C. Arrange supports to prevent misalignment during wiring installation.

D. Support conduit using coated steel straps, lay-in adjustable hangers, clevis hangers, and split hangers.

E. Group related conduits; support using conduit rack. Construct rack using steel channel; provide space on each for 25 percent additional conduits.

F. Fasten conduit supports to building structure and surfaces under provisions of Section 16190.

G. Do not support conduit with wire or perforated pipe straps. Remove wire used for temporary supports.

H. Do not attach conduit to ceiling support wires.

I. Arrange conduit to maintain headroom and present neat appearance.

J. Route exposed conduit parallel and perpendicular to walls. Exposed conduits shall only be run in mechanical and electrical rooms.

K. Route conduit installed above accessible ceilings parallel and perpendicular to walls.

L. All conduit run in public areas, offices, restrooms, hallways, etc., shall be concealed. Saw cut walls and floor slabs. Make arrangements with General Contractor to patch all areas with no additional cost to Owner.

M. Provide nominal 4" cast-in-place concrete curbs at floor mounted electrical distribution panel conduit connections for conduits stubbed-up from below slab.

N. Maintain minimum six inch (6") clearance between conduit and piping.

O. Maintain 12 inch clearance between conduit and surfaces with temperatures exceeding 104 degrees F (40 degrees C).

P. Cut conduit square using saw or pipecutter; de-burr cut ends.

Q. Bring conduit to shoulder of fittings; fasten securely.

R. Join nonmetallic conduit using cement as recommended by manufacturer. Wipe nonmetallic conduit dry and clean before joining. Apply full even coat of cement to entire area inserted in fitting. Allow joint to cure for 20 minutes, minimum.

T. Use conduit hubs to fasten conduit to sheet metal boxes in damp and wet locations and to cast boxes.

U. Install no more than equivalent of four 90-degree bends between boxes. Use conduit bodies to make sharp changes in direction, as around beams. Use hydraulic one-shot bender or factory elbows for bends in metal conduit larger than 2 inch size.

V. Avoid moisture traps; provide junction box with drain fitting at low points in conduit system.

W. Provide fittings designed to accommodate expansion and deflection where conduit crosses, control, and expansion joints.

X. Provide No. 12 AWG insulated conductor or suitable pull string in each empty conduit except sleeves and nipples.

Y. Use suitable caps to protect installed conduit against entrance of dirt and moisture.

Z. Ground and bond conduit under provisions of Section 16170.

AA. Identify conduit under provisions of Section 16195.

AB. Install rigid steel long radius elbows, size 1-¼" and larger, in below grade and first floor slab conduit runs.

AC. Exterior conduit stub-ups shall be rigid galvanized coated with Bitumastic 1-¼" and larger. Concrete encase with a minimum 3" coverage from beginning of 90 degree elbow stub up to 3" above grade.

AD. Maintain Manufacturer's recommended minimum bending radius on flexible conduit.

AE. Flexible metal conduit shall not be over six feet (6') long. Motors three feet (3') long.

AF. Flexible metal conduit shall be used for a flexible connection only, not raceways.

AG. Liquid tight flexible conduit shall be used in wet location and mechanical room for flexible connections only.

AH. Install insulated bushing on all conduits.

AI. Install grounded metal insulated bushing with lug on all mains, sub-feeders, switchboards, panelboards, transformers, chillers, disconnects, and equipment rated at 100 amps and above.

AJ. Install and seal boxes and conduit in acoustical treated walls and ceilings per architectural acoustics specifications.

3.02 INTERFACE WITH OTHER PRODUCTS

A. Install conduit to preserve fire resistance rating of partitions and other elements, using materials and methods that are UL listed and tested.

B. Route conduit through roof openings for piping and ductwork or through suitable roof jack with pitch pocket.

- SECTION END -

SECTION 16120 - BUILDING WIRE AND CABLE

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Building Wire and Cable.

B. Remote Control and Signal Cable.

C. Power Limited Fire Protective Signaling Cable.

D. Wiring Connectors and Connections.

1.02 RELATED SECTIONS

A. Section 16111.....Conduit.

B. Section 16130.....Boxes.

C. Section 16195.....Identification.

1.03 REFERENCES

A. ANSI/NFPA 70—National Electrical Code.

B. NEMA WC5—Thermoplastic-insulated wire and cable for the transmission and distribution of electrical energy.

1.04 PROJECT CONDITIONS

A. Verify that field measurements are as shown on Drawings.

B. Conductor sizes are based on copper.

C. Where wire and cable routing is not shown, and destination only is indicated, determine exact routing and lengths required.

1.05 COORDINATION

A. Coordinate work under provisions of Division 1.

B. Determine required separation between cable and other work.

C. Determine cable routing to avoid interference with other work.

PART 2 - PRODUCTS

2.01 BUILDING WIRE AND CABLE

A. Description: Single conductor insulated wire.

B. Conductor: Copper, #12 minimum.

C. Insulation Voltage Rating: 600 volts.

D. Insulation: ANSI/NFPA 70, Type THHN/THWN, XHHW material rated 90 degrees C.

2.02 CLASS 1 REMOTE CONTROL AND SIGNAL CABLE

A. Description: ANSI/NFPA 70, Type TFFN, THHN.

B. Conductor: Copper.

C. Insulation Voltage Rating: 600 volts.

2.03 CLASS 2 OR 3 REMOTE CONTROL AND SIGNAL CABLE

A. Description: NEMA/ICEA WC5, thermoplastic insulated cable, individual insulated conductors twisted together, metallic shielded and covered with PVC jacket when installed in metal raceway.

B. Conductor: Copper, stranded.

C. Insulation Voltage Rating: 300 volts.

2.04 CLASS 1 AND NON POWER—LIMITED FIRE PROTECTIVE SIGNALING CABLES

A. Description: NEMA/NFPA 70, type TFFN, THHN installed in metal raceway.

B. Conductor: Copper.

C. Insulation Voltage Rating: 600 volts.

2.05 POWER LIMITED FIRE PROTECTIVE SIGNALING CABLES

A. Description: NEMA/NFPA 70, type TFFN, THHN installed in metal raceway.

B. Conductor: Copper.

C. Insulation Voltage Rating: 600 volts.

PART 3 - EXECUTION

3.01 EXAMINATION

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

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

3.02 PREPARATION

A. Completely and thoroughly swab raceway before installing wire.

3.03 WIRING METHODS

A. Concealed Dry Interior Locations: Use only building wire and cable (all types) in raceway.

B. Exposed Dry Interior Locations: For feeders, branch circuits, and class 1 remote control circuits, use only building wire in raceway. For class 2 or 3 control cable and power limited fire protective signaling cables run in raceway.

C. Above Accessible Ceilings: For feeders, branch circuits and class 1 remote control cables use only building wire in raceway. For class 2 or 3 remote control cables run exposed. For power limited fire protective signaling cables run in raceway.

D. Wet or Damp Interior Locations: For feeders, branch circuits and class 1 remote control cables use only building wire in raceway. For class 2 or 3 remote control cable and power limited fire protective signaling cables run in raceway.

E. Exterior Locations: For feeders, branch circuits and class 1 remote control cables use only building wire run in raceway. For class 2 or 3 remote control cables and fire protective signaling cables run in raceway.

F. Use wiring methods indicated on Drawings.

3.04 INSTALLATION

A. Install products in accordance with manufacturers instructions.

B. Use solid conductor for feeders and branch circuits 12 AWG and smaller.

C. Use stranded conductors for control circuits and for feeder and branch circuits No. 8 and larger.

D. Use conductor not smaller than 12 AWG for power and lighting circuits.

E. Use conductor not smaller than 14 AWG for control circuits.

F. Use 10 AWG conductors for 20 ampere, 120 volt branch circuits longer than 75 feet.

G. Use 10 AWG conductors for 20 ampere, 277 volt branch circuits longer than 200 feet.

H. All conductors size #6 and smaller shall be color coded insulation. Equipment grounding conductors #6 and smaller to have green or bare exterior finish per NEC 250-119(A). Grounded conductors (neutral) #6 and smaller to have a white or grey exterior finish per NEC 200-6. Conductors size #4 and larger shall be color code by use of colored plastic tape applied within 6" of each conductor end. All color coding shall be with the same color being used with its respective phase or bus through the entire job as follows:

208/120 VOLTS	277/480 VOLTS
Phase A... Black	Phase A.... Brown
Phase B... Red	Phase B.... Orange
Phase C... Blue	Phase C.... Yellow
Neutral..... White	Neutral..... Gray
Ground .... Green	Ground..... Green

I. Grounding conductors shall be identified with a continuous outer finish that is either green, or green with one or more yellow stripe.

J. Use suitable wire pulling lubricant for building wire 4 AWG and larger.

K. Protect exposed cable from damage.

L. Support cables above accessible ceiling, using spring metal clips or plastic cable ties to support cables from structure. Do not rest cable on ceiling panels.

M. Use suitable cable fittings and connectors.

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

O. Clean conductor surfaces before installing lugs and connectors.

P. Make splices, taps, and terminations to carry full ampacity of conductors with no perceptible temperature rise.

Q. Use split bolt connectors for copper conductor splices and taps, 6 AWG and larger. Tape uninsulated conductors and connector with electrical tape to 150 percent of insulation rating of conductor.

R. Use solderless pressure connectors with insulating covers for copper conductor splices and taps, 8 AWG and smaller.

S. Terminate spare conductors with electrical tape.

T. Use insulated spring wire connectors with plastic caps for copper conductor splices and taps, 10 AWG and smaller.

U. Splice only in accessible junction boxes.

3.05 INTERFACE WITH OTHER PRODUCTS

A. Identify wire and cable under provisions of Section 16195.

B. Identify each conductor with its circuit number or other designation indicated on Drawings.

3.06 FIELD QUALITY CONTROL

A. Perform field inspection and testing under provisions of Division 1.

B. Inspect wire and cable for physical damage and proper connection.

C. Measure tightness of bolted connections and compare torque measurements with manufacturer's recommended values.

D. Verify continuity of each branch circuit conductor.

E. Verify continuity of each control circuit conductor.

F. Verify proper phasing of conductors.

- SECTION END -

SECTION 16130 - BOXES

PART 1- GENERAL

1.01 SECTION INCLUDES

A. Pull and Junction Boxes.

1.02 RELATED SECTIONS

A. Section 16010.....Basic Electrical Requirements.

B. Section 16141.....Wiring Devices.

C. Section 16160.....Cabinets and Enclosures.

D. Section 16180.....Wiring Systems.

E. Section 16195.....Electrical Identification.

1.03 REFERENCES

A. ANSI/NEMA OS 1—Sheet-steel Outlet Boxes, Device Boxes, Covers, and Box Supports.

B. ANSI/NFPA 70—National Electrical Code.

C. NEMA 250—Enclosures for Electrical Equipment (1000 Volts Maximum).

1.04 PROJECT CONDITIONS

A. Verify field measurements are as shown on Drawings.

B. Electrical boxes are shown on Drawings in approximate locations unless dimensioned. Install at location required for box to serve intended purpose.

PART 2 - PRODUCTS

2.01 PULL AND JUNCTION BOXES

A. Sheet Metal Boxes: NEMA OS 1, galvanized steel.

B. Surface-Mounted Cast Metal Box: NEMA 250, Type 4; flat-flanged, surface-mounted junction box.

1. Material: Cast aluminum.

2. Cover: Furnish with ground flange, neoprene gasket, and stainless steel cover screws.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install electrical boxes as shown on Drawings, and as required for splices, taps, wire pulling, equipment connections and compliance with regulatory requirements.

B. Install electrical boxes to maintain headroom and to present neat mechanical appearance.

C. Install pull boxes and junction boxes above accessible ceilings and in unfinished areas only.

D. Inaccessible Ceiling Areas: Install outlet and junction boxes no more than 6 inches from ceiling access panel or from removable recessed luminaire.

E. Install boxes to preserve fire resistance rating of partitions and other elements, using materials and methods that are UL listed and tested.

F. Do not fasten boxes to ceiling support wires.

G. Support boxes independently of conduit, except cast box that is connected to two rigid metal conduits both supported within 12 inches of box.

H. Use gang box where more than one device is mounted together. Do not use sectional box. Provide barriers to separate different voltage systems.

I. Use cast outlet box in exterior locations exposed to the weather and wet locations.

J. Large Pull Boxes: Boxes larger than 100 cubic inches (1 600 cubic centimeters) in volume or 12 inches (300 mm) in any dimension.

   1. Interior Dry Locations: Use hinged enclosure under provisions of Section 16160.

   2. Other Locations: Use surface-mounted cast metal box.

K. Identify boxes under provision or Section 16195.

- SECTION END -

SECTION 16190 - Supporting Devices

PART 1 GENERAL

1.01 WORK INCLUDED

A. Conduit and Equipment Supports.

B. Fastening Hardware.

1.02 COORDINATION

A. Coordinate size, shape and location of concrete pads.

1.03 QUALITY ASSURANCE

A. Support systems shall be adequate for weight of equipment and conduit, including wiring, which they carry.

PART 2 PRODUCTS

2.01 MATERIAL/FINISH

A. General Locations: Steel equipment hangers, miscellaneous steel supports, hardware, bolts, washers, nuts, screws, etc., not specified to be plated or coated shall be hot dipped galvanized with a minimum of 1.50 oz/ft. on all sides and all field cuts shall be zinc coated.

B. Located In or Around Cooling Tower Yards: Pipe hangers, equipment supports, miscellaneous structure components, hardware, bolts, washers, nuts, screws, etc., shall be non-metallic polyester resin, vinyl ester resin, fiberglass, glass reinforced polyurethane, or 316 stainless steel.

PART 3 EXECUTION

3.01 INSTALLATION

A. Fasten hanger rods, conduit clamps, and outlet and junction boxes to building structure using expansion anchors, beam clamps, or spring steel clips.

B. Use toggle bolts or hollow wall fasteners in hollow masonry, plaster, or gypsum board partitions and walls; expansion anchors or preset inserts in solid masonry walls; self-drilling anchors or expansion anchor on concrete surfaces; sheet metal screws in sheet metal studs; and wood screws in wood construction.

C. Do not fasten supports to piping, ductwork, mechanical equipment, or conduit.

D. Do not use powder-actuated anchors.

E. Do not drill structural steel members.

F. Fabricate supports from structural steel or steel channel, rigidly welded or bolted to present a neat appearance. Use hexagon head bolts with spring lock washers under all nuts.

- SECTION END -

SECTION 16195 - ELECTRICAL IDENTIFICATION

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Nameplates and Tape Labels.

B. Wire and Cable Markers.

C. Conduit System Junction Box and Pull Box Color Coding.

1.02 SUBMITTALS

A. Include schedule for nameplates and tape labels.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Nameplates: Engraved three-layer laminated plastic, black letters on a white background.

B. Wire and Cable Markers: Cloth markers, split sleeve or tubing type.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Degrease and clean surfaces to receive nameplates.

B. Install nameplates parallel to equipment lines.

C. Secure nameplates to equipment fronts using screws or rivets. Secure nameplate to inside face of recessed panelboard doors in finished locations.

D. Embossed tape will not be permitted for any application.

3.02 WIRE IDENTIFICATION

A. Provide wire markers on each conductor in panelboard gutters, pull boxes, outlet and junction boxes, and at load connection. Identify with branch circuit or feeder number for power and lighting circuits, and with control wire number as indicated on schematic and interconnection diagrams or equipment manufacturer's shop drawings for control wiring.

3.03 NAMEPLATE ENGRAVING SCHEDULE

A. Provide nameplates of minimum letter height as scheduled below.

B. Panelboards, Switchboards and Motor Control Centers: 1/4 inch; identify equipment designation. 1/8 inch; identify voltage rating and source.

C. Individual Circuit Breakers, Switches, and Motor Starters In Panelboards, Switchboards, and Motor Control Centers: 1/8 inch; identify circuit and load served, including location.

D. Individual Circuit Breakers, Enclosed Switches, and Motor Starters: 1/8 inch; identify load served.

E. Transformers: 1/4 inch; identify equipment designation. 1/8 inch; identify primary and secondary voltages, primary source, and secondary load and location.

3.04 CONDUIT SYSTEM, JUNCTION BOX, AND PULLBOX COLOR CODING SCHEDULE

A. 480 Volt, Single and Three Phase System: Blue.

B. 208 Volt, Single and Three Phase System: Black.

C. Fire Alarm System: Red.

D. Motor and Other Control Systems: Purple.

- SECTION END -

SECTION 16440 – DISCONNECT SWITCHES

PART 1 GENERAL

1.01 WORK INCLUDED

A. Disconnect Switches.

B. Fuses.

C. Enclosures.

1.02 REFERENCES

A. ANSI/UL 198C—High-Intensity Capacity Fuses; Current Limiting Types.

B. ANSI/UL 198E—Class R Fuses.

C. FS W-F-870—Fuseholders (For Plug and Enclosed Cartridge Fuses).

D. FS W-S-865—Switch, Box, (Enclosed), Surface-Mounted.

E. NEMA KS 1—Enclosed Switches.

1.03 SUBMITTALS

A. Submit product data under provisions of Division 1.

B. Include outline drawings with dimensions, and equipment ratings for voltage, capacity, horsepower, and short circuit.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS—DISCONNECT SWITCHES

A. Square D.

B. Siemens.

C. Cutler Hammer.

D. Substitutions: Under provisions of Division 1.

2.02 DISCONNECT SWITCHES

A. Fusible Switch Assemblies: NEMA KS 1; Type HD, FS W-S-865; quick-make, quick-break, load interrupter enclosed knife switch with externally operable handle interlocked to prevent opening front cover with switch in ON position. Handle lockable in OFF position. Fuse Clips: FS W-F- 870.

B. Nonfusible Switch Assemblies: NEMA KS 1; Type HD; FS W-S-865; quick-make, quick-break, load interrupter enclosed knife switch with externally operable handle interlocked to prevent opening front cover with switch in ON position. Handle lockable in OFF position.

C. Enclosures: NEMA KS 1; as indicated on drawings.

2.03 ACCEPTABLE MANUFACTURERS—FUSES

A. Bussmann.

B. Gould-Schawmut.

C. Littelfuse Tracor.

D. Substitutions: Under provisions of Division 1.

2.04 FUSES

A. Fuses 600 Amperes and Less: ANSI/UL 198E, Class J for feeders and transformer loads and class RK 5 for motor loads. Dual element, current limiting, time delay, one-time fuse, 250 or 600 volt.

B. Interrupting Rating: 200,000 rms amperes.

C. Provide three (3) spare fuses for each different size and class of fuse being provided. Store in fuse cabinet (provided by Electrical Contractor) located by Architect/Engineer.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install disconnect switches where indicated on Drawings.

B. Install fuses in fusible disconnect switches.

C. Disconnect switch enclosures shall be NEMA Type 3R for exterior applications unless otherwise noted on the drawings, except for installations in or around Cooling Tower Yards, in which the enclosure shall be NEMA Type 4X, stainless steel, unless otherwise noted on the drawings.

- SECTION END -

Pinellas County
OMB - PURCHASING
Merry Celeste, Division Director
Pinellas County Courthouse Annex Bldg., Sixth Floor, Clearwater, FL 33765

[AIR MECHANICAL & SERVICE CORP] RESPONSE DOCUMENT REPORT

ITB-C No. 26-0306-ITB-C STEP 2

STAR Center AHU -104, -161, -162 Replacement Step 2

RESPONSE DEADLINE: March 26, 2026 at 3:00 pm

Report Generated: Friday, April 10, 2026

Air Mechanical & Service Corp Response

CONTACT INFORMATION

Company:
Air Mechanical & Service Corp

Email:
ssteele@amsco-ac.com

Contact:
Sean Steele

Address:
4311 W. Ida Street
Tampa, FL 33614

Phone:
N/A

Website:
N/A

Submission Date:
Mar 26, 2026 2:01 PM (Eastern Time)

ADDENDA CONFIRMATION

No addenda issued

QUESTIONNAIRE

1. Please Upload your COMPLETE Bid here. *

1. W-9

2. SBE Form

3. Florida Trench Safety

4. Addendum (acknowledge if applicable in OpenGov)

5. E-Verify Affidavit and document from E-Verity.gov.

6. Bid Bond

7. OpenGov Fillable- Final

8. Affidavit of Release and Guarantee

9. Qualification Submittal Form

10. Entity information from SAM.GOV

11. Common_Carrier_Attestation

12. Human_Trafficking_Affidavit

13, Foreign_Countries_of_Concern_Affidavit

1-W-9.pdf
2-SBE_Form.pdf
3-Florida_Trench_Safety_Form.pdf
5-E-Verify_Aff_and_Dcoumet_from_E-Verify.gov.pdf

6-Bid_Bond_for_STAR_Center.pdf
7-Open_Gov_Fillable-Final.pdf
8-Affidavit_of_Release_and_Guarantee.pdf
9-Qualification_Submittal_Form.pdf
10-Entity_Information_from_SAM.GOV.pdf
11-Common_Carrier_Attestation.pdf
12-Human_Trafficing_Affidavit.pdf
13-Foreign_Countries_of_Concern_Affidavit.pdf
Cert_of_Insurance.pdf
General_Contractors_License.pdf
Mechanical_Contractors_License.pdf

2. Did you read through and confirm that you met all the Bid requirements and attached all required documents?*
Yes

PRICE TABLES

TABLE 1

Line Item	Description	Quantity	Unit of Measure	Unit Cost	Total
1	Provide all equipment, materials, labor, and permitting to complete the replacement of three (3) Air Handling units 104, 161, and 162. Provide new direct digital controls to tie into existing controls fiber backbone.	1	LS	$444,860.00	$444,860.00
TOTAL					**$444,860.00**

TABLE 2 (UNSPECIFIED WILL NOT DETERMINE BID AWARD)

Line Item	Description	Unit of Measure	Unit Cost
1	Unspecified Hourly Labor Rate for unforseen conditions	$/hr	$98.00

CONTINGENCY

Line Item	Description	Unit of Measure	Unit Cost
1	Contingency	LS	$10,000.00

Form **W-9**
(Rev. March 2024)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

Go to *www.irs.gov/FormW9* for instructions and the latest information.

Give form to the requester. Do not send to the IRS.

Before you begin. For guidance related to the purpose of Form W-9, see *Purpose of Form*, below.

Print or type. See ***Specific Instructions*** on page 3.

1 Name of entity/individual. An entry is required. (For a sole proprietor or disregarded entity, enter the owner's name on line 1, and enter the business/disregarded entity's name on line 2.)

Air Mechanical & Service Corp.

2 Business name/disregarded entity name, if different from above.

3a Check the appropriate box for federal tax classification of the entity/individual whose name is entered on line 1. Check only **one** of the following seven boxes.

☐ Individual/sole proprietor ☐ C corporation ☒ S corporation ☐ Partnership ☐ Trust/estate

☐ LLC. Enter the tax classification (C = C corporation, S = S corporation, P = Partnership) . . . . .

Note: Check the "LLC" box above and, in the entry space, enter the appropriate code (C, S, or P) for the tax classification of the LLC, unless it is a disregarded entity. A disregarded entity should instead check the appropriate box for the tax classification of its owner.

☐ Other (see instructions)

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):

Exempt payee code (if any)

Exemption from Foreign Account Tax Compliance Act (FATCA) reporting code (if any)

(Applies to accounts maintained outside the United States.)

3b If on line 3a you checked "Partnership" or "Trust/estate," or checked "LLC" and entered "P" as its tax classification, and you are providing this form to a partnership, trust, or estate in which you have an ownership interest, check this box if you have any foreign partners, owners, or beneficiaries. See instructions . . . . . ☐

5 Address (number, street, and apt. or suite no.). See instructions.

4311 W. Ida Street

Requester's name and address (optional)

6 City, state, and ZIP code

Tampa, FL 33614

7 List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.

Note: If the account is in more than one name, see the instructions for line 1. See also *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number

			-			-				

or

Employer identification number

5	9	-	2	1	5	8	9	0	2

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and, generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here **Signature of U.S. person** [signature] **Date** 3-26-2026

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to *www.irs.gov/FormW9*.

What's New

Line 3a has been modified to clarify how a disregarded entity completes this line. An LLC that is a disregarded entity should check the appropriate box for the tax classification of its owner. Otherwise, it should check the "LLC" box and enter its appropriate tax classification.

New line 3b has been added to this form. A flow-through entity is required to complete this line to indicate that it has direct or indirect foreign partners, owners, or beneficiaries when it provides the Form W-9 to another flow-through entity in which it has an ownership interest. This change is intended to provide a flow-through entity with information regarding the status of its indirect foreign partners, owners, or beneficiaries, so that it can satisfy any applicable reporting requirements. For example, a partnership that has any indirect foreign partners may be required to complete Schedules K-2 and K-3. See the Partnership Instructions for Schedules K-2 and K-3 (Form 1065).

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS is giving you this form because they

APPENDIX 7 – SBE COMPLIANCE FORM

Mandatory SBE PROJECT GOALS: 3%
PRIME CONTRACTOR NAME: Air Mechanical& Service Corp.
SUBCONTRACTOR(S) INFORMATION:

COMPANY:	Falcon Electric	COMPANY:	
ADDRESS:	440 Roberts Road, Suite 5	ADDRESS:	
	Oldsmar, FL 34677		
AMOUNT OF SUBCONTRACTED WORK:	$ 45,997.00	AMOUNT OF SUBCONTRACTED WORK:	$
CONTACT:	Neal Burns	CONTACT:	
EMAIL:	NBurns@falconelectricinc.com	EMAIL:	
TELEPHONE:	813-814-1816	TELEPHONE:	
COMPANY:		**COMPANY**:	
ADDRESS:		ADDRESS:	
AMOUNT OF SUBCONTRACTED WORK:	$	AMOUNT OF SUBCONTRACTED WORK:	$
CONTACT:		CONTACT:	
EMAIL:		EMAIL:	
TELEPHONE:		TELEPHONE:	

I certify that the information included in this Compliance Form is true and complete to the best of my knowledge and belief. I further understand and agree that this Compliance Form shall become a part of my contract with Pinellas County.

Name and Title of Authorized Representative: Andy Citek, VP/Branch Manager

Signature:

FOR PINELLAS COUNTY USE ONLY:

I have reviewed this Compliance Form and found the Bidder ☐ ***IS*** ☐ ***IS NOT*** *in compliance with the Invitation to Bid SBE goals.*

Purchasing Staff Member:

Initials: **Date:**

Detail by Entity Name

Florida Profit Corporation
FALCON ELECTRIC, INC.

Filing Information

Document Number	P93000087310
FEI/EIN Number	59-3215465
Date Filed	12/22/1993
State	FL
Status	ACTIVE
Last Event	AMENDMENT
Event Date Filed	06/19/2009
Event Effective Date	NONE

Principal Address

440 ROBERTS ROAD
SUITE 5
OLDSMAR, FL 34677

Changed: 02/16/2011

Mailing Address

PO BOX 2297
Oldsmar, FL 34677

Changed: 01/29/2020

Registered Agent Name & Address

Goodwin , James W, III
201 N FRANKLIN ST
SUITE 200
TAMPA, FL 33602

Name Changed: 03/06/2024

Address Changed: 03/06/2024

Officer/Director Detail

Name & Address

Title CEO

KOMAREK, ROBERT
1650 E Dorchester Ct
Palm Harbor, FL 34684

Annual Reports

Report Year	Filed Date
2024	03/06/2024
2025	02/24/2025
2026	02/17/2026

Document Images

02/17/2026 -- ANNUAL REPORT	View image in PDF format
02/24/2025 -- ANNUAL REPORT	View image in PDF format
03/06/2024 -- ANNUAL REPORT	View image in PDF format
04/11/2023 -- ANNUAL REPORT	View image in PDF format
04/08/2022 -- ANNUAL REPORT	View image in PDF format
03/16/2021 -- ANNUAL REPORT	View image in PDF format
01/29/2020 -- ANNUAL REPORT	View image in PDF format
04/08/2019 -- ANNUAL REPORT	View image in PDF format
03/23/2018 -- ANNUAL REPORT	View image in PDF format
02/01/2017 -- ANNUAL REPORT	View image in PDF format
03/02/2016 -- ANNUAL REPORT	View image in PDF format
03/23/2015 -- ANNUAL REPORT	View image in PDF format
03/19/2014 -- ANNUAL REPORT	View image in PDF format
04/03/2013 -- ANNUAL REPORT	View image in PDF format
01/25/2012 -- ANNUAL REPORT	View image in PDF format
02/16/2011 -- ANNUAL REPORT	View image in PDF format
04/01/2010 -- ANNUAL REPORT	View image in PDF format
06/19/2009 -- Amendment	View image in PDF format
04/10/2009 -- ANNUAL REPORT	View image in PDF format
04/15/2008 -- ANNUAL REPORT	View image in PDF format
01/08/2007 -- ANNUAL REPORT	View image in PDF format
01/12/2006 -- ANNUAL REPORT	View image in PDF format
03/23/2005 -- ANNUAL REPORT	View image in PDF format
04/19/2004 -- ANNUAL REPORT	View image in PDF format
04/25/2003 -- ANNUAL REPORT	View image in PDF format
05/15/2002 -- ANNUAL REPORT	View image in PDF format
06/20/2001 -- ANNUAL REPORT	View image in PDF format
04/28/2000 -- ANNUAL REPORT	View image in PDF format
03/01/1999 -- ANNUAL REPORT	View image in PDF format
02/10/1998 -- ANNUAL REPORT	View image in PDF format
03/24/1997 -- ANNUAL REPORT	View image in PDF format
04/09/1996 -- ANNUAL REPORT	View image in PDF format
05/01/1995 -- ANNUAL REPORT	View image in PDF format

AIR MECHANICAL & SERVICE CORP.

4311 W Ida Street
Tampa, FL 33614

Suppliers and Vendors

Daikin/Units
Terry Rogers
Daikin Applied Central and West Coast Florida
3711 W Walnut St
Tampa, FL 33607
Office – (813) 879-5790 EXT 2238
Cell – (813)-493-6707
terry.rogers@daikinapplied.com

TRANE/Units
Keenan Sanz
Tampa Bay TRANE
902 N Himes Avenue, Tampa, FL 33609
Office Direct Tel: 813.421-7685
Mobile: 813.309.2611
keenan.sanz@trane.com

Florida Industrial Products/Materials
Sergio Vegas Figueroa
Florida **I**ndustrial **P**roducts
1602 N. 39TH Street, Tampa, FL 33605
Ph: (813) 247-5356 ext. 1108
sergiovf@fiponline.com

Win Supply/Materials
David Kravitz
Tampa Win Supply
Branch number 616
7040 Anderson Road
Tampa, FL 33634
Office:813-249-8612
Cell:813-777-0311
dkravitz@winsupply.com

FLORIDA TRENCH SAFETY ACT

CERTIFICATION AND DISCLOSURE STATEMENT

The undersigned acknowledges the requirements of the Florida Trench Safety Act (Section 553.60 et. seq. Florida Statutes).

A. The Bidder further acknowledges that the Florida Trench Safety Act, (the Act) establishes the Federal excavation safety standards set forth at 29 C.F.R. Section 1926.650 Subpart P, as the interim state standard until such time as the state of Florida, through its Department of Labor and Employment Security, or any successor agency, adopts, updates, or revises said interim standard. This State of Florida standard may be supplemented by special shoring requirements established by the State of Florida or any of its political subdivisions.

B. The Bidder, as Contractor, shall comply with all applicable excavation/trench safety standards.

C. The contractor shall consider the geotechnical data available from the County, if any, the Contractor's own sources, and all other relevant information in its design of the trench safety system to be employed on the subject Project. The Contractor acknowledges sole responsibilities for the selection of the data on which it relies in designing the safety system, as well as for the system itself.

D. The amounts that the Bidder has set forth for pipe installation includes the following excavation/trench safety measures and the linear feet of trench excavated under each safety measure. These units, costs, and unit values shall be disclosed solely for the purpose of compliance with procedural requirements of the Act. No adjustment to the Agreement Time or price shall be made for any difference in the actual number of linear feet of trench excavation, except as may be otherwise provided in these Contract Documents.

	Trench Safety Measure (Description)	**Units of Measure (LF, SF)**	**Unit (Quantity)**	**Unit Cost**	**Extended Cost**
1.	N/A			$	$
2.				$	$
3.				$	$
4.				$	$
5.				$	$

For Information Only, Not for Payment Purposes $ N/A

FLORIDA TRENCH SAFETY

Bidder may use additional sheets as necessary to extend this form. Failure to complete the above may result in the bid being declared non-responsive.

A. The amount disclosed as the cost of compliance with the applicable trench safety requirements does not constitute the extent of the Contractor's obligation to comply with said standards. The Contractor shall extend additional sums at no additional cost to the County, if necessary, to comply with the Act (except as otherwise be provided).

B. Acceptance of the bid to which this certification and disclosure applies in no way represents that the County or its representatives has evaluated and thereby determined that the above costs are adequate to comply with the applicable trench safety requirements nor does it in any way relieve the Contractor of its sole responsibility to comply with the applicable trench safety requirements.

Air Mechancial & Service Corp.

Company Name

Andy Citek, Vice President/Branch Manager

Name and Title

Address:

4311 W. Ida Street

Tampa, FL 33614

TEL: 813-363-2162 FAX: 727-544-4340

Telephone/Fax

59-2158902

Federal Employee ID NO. (FEIN)

acitek@amsco-ac.com

Email of Account Representative

E-VERIFY AFFIDAVIT

I hereby certify that Air Mechanical & Service Corp. [insert contractor company name] does not employ, contract with, or subcontract with an unauthorized alien, and is otherwise in full compliance with Section 448.095, Florida Statutes.

All employees hired on or after January 1, 2021 have had their work authorization status verified through the E-Verify system.

A true and correct copy of Air Mechanical & Service Corp. [insert contractor company name] proof of registration in the E-Verify system is attached to this Affidavit.

Signature: _____

Print Name: Andy Citek

Date: March 26, 2026

Federal Work Authorization User Identification No.: 540879

Name of Pinellas County Contract and Contract No.: STAR Center AHU, 26-0306-ITB-C

STATE OF FLORIDA COUNTY OF PINELLAS

The foregoing instrument was acknowledged before me by means of 1) physical presence X or 2) online notarization ___, this March 26, 2026 (date) by Andy Citek (name of officer or agent, title of officer or agent) of Air Mechancial & Service Corp. (name of contractor company acknowledging), a Florida (state or place of incorporation) corporation, on behalf of the corporation. He/~~she~~ is personally known to me or has produced _____ (type of identification) as identification.

[Notary Seal]

Notary Public State of Florida
Julie A. Ris
My Commission HH 773544
Expires 3/28/2030

Notary Public: Julie A. Ris

Name typed, printed, or stamped: Julie A. Ris

My Commission Expires: 03/28/2030

E-Verify

Company ID Number: 540879

To be accepted as a participant in E-Verify, you should only sign the Employer's Section of the signature page. If you have any questions, contact E-Verify at 888-464-4218.

Employer Air Mechanical & Service Corp.	
Warren Byers	
Name (Please Type or Print)	Title
Electronically Signed	**04/10/2012**
Signature	Date

Department of Homeland Security – Verification Division	
USCIS Verification Division	
Name (Please Type or Print)	Title
Electronically Signed	**04/10/2012**
Signature	Date

Information Required for the E-Verify Program

Information relating to your Company:

Company Name:	**Air Mechanical & Service Corp.**
Company Facility Address:	**4311 W. Ida Street**
	Tampa, FL 33614
Company Alternate Address:	
County or Parish:	**HILLSBOROUGH**
Employer Identification Number:	**592158902**

E-Verify

Company ID Number: 540879

North American Industry Classification Systems Code:	238
Administrator:	
Number of Employees:	100 to 499
Number of Sites Verified for:	1

Are you verifying for more than 1 site? If yes, please provide the number of sites verified for in each State:

- FLORIDA 1 site(s)

Information relating to the Program Administrator(s) for your Company on policy questions or operational problems:

Name:	**Lynn M Goldstein**		
Telephone Number:	**(813) 875 - 0782**	Fax Number:	**(813) 873 - 2275**
E-mail Address:	**lynn@amsco-ac.com**		

Document A310™ – 2010

Conforms with The American Institute of Architects AIA Document 310

Bid Bond

CONTRACTOR:
(Name, legal status and address)

Air Mechanical & Service Corp.
4311 W. Ida Street
Tampa, FL 33614

SURETY:
(Name, legal status and principal place of business)

Westfield Insurance Company
P.O. Box 5001
Westfield Center, OH 44251-5001

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

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

OWNER:
(Name, legal status and address)

STAR Center
7887 Bryan Dairy Blvd
Largo, FL 33777

BOND AMOUNT: $ 5% Five Percent of Amount Bid

PROJECT:
(Name, location or address, and Project number, if any)

STAR Center AHU-104-161-162 Replacement, bid 26-0306-ITB-C, 7887 Bryan Dairy Blvd., Largo FL 33777

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this 26th day of March, 2026

Julie A. Ris
(Witness)

Air Mechanical & Service Corp.
(Principal) *(Seal)*

By:
(Title) VICE PRESIDENT/BRANCH MANAGER

Eileen Heard
(Witness) Eileen Heard, Surety Witness

Westfield Insurance Company
(Surety) *(Seal)*

By:
(Title) Kevin Wojtowicz Attorney-in-Fact
and Florida Licensed Resident Agent

POWER NO. 0994782 00

General Power of Attorney

CERTIFIED COPY

Westfield Insurance Co.
Westfield National Insurance Co.
Ohio Farmers Insurance Co.

Westfield Center, Ohio

Know All Men by These Presents, That WESTFIELD INSURANCE COMPANY, WESTFIELD NATIONAL INSURANCE COMPANY and OHIO FARMERS INSURANCE COMPANY, corporations, hereinafter referred to individually as a "Company" and collectively as "Companies," duly organized and existing under the laws of the State of Ohio, and having its principal office in Westfield Center, Medina County, Ohio, do by these presents make, constitute and appoint
KEVIN WOJTOWICZ, JENNIFER STEPHENS, JOHN R. NEU, JOINTLY OR SEVERALLY

of ST PETERSBURG and State of FL its true and lawful Attorney(s)-in-Fact, with full power and authority hereby conferred in its name, place and stead, to execute, acknowledge and deliver any and all bonds, recognizances, undertakings, or other instruments or contracts of suretyship- -

LIMITATION: THIS POWER OF ATTORNEY CANNOT BE USED TO EXECUTE NOTE GUARANTEE, MORTGAGE DEFICIENCY, MORTGAGE GUARANTEE, OR BANK DEPOSITORY BONDS.
and to bind any of the Companies thereby as fully and to the same extent as if such bonds were signed by the President, sealed with the corporate seal of the applicable Company and duly attested by its Secretary, hereby ratifying and confirming all that the said Attorney(s)-in-Fact may do in the premises. Said appointment is made under and by authority of the following resolution adopted by the Board of Directors of each of the WESTFIELD INSURANCE COMPANY, WESTFIELD NATIONAL INSURANCE COMPANY and OHIO FARMERS INSURANCE COMPANY:

"Be It Resolved, that the President, any Senior Executive, any Secretary or any Fidelity & Surety Operations Executive or other Executive shall be and is hereby vested with full power and authority to appoint any one or more suitable persons as Attorney(s)-in-Fact to represent and act for and on behalf of the Company subject to the following provisions:

The Attorney-in-Fact. may be given full power and authority for and in the name of and on behalf of the Company, to execute, acknowledge and deliver, any and all bonds, recognizances, contracts, agreements of indemnity and other conditional or obligatory undertakings and any and all notices and documents canceling or terminating the Company's liability thereunder, and any such instruments so executed by any such Attorney-in-Fact shall be as binding upon the Company as if signed by the President and sealed and attested by the Corporate Secretary."

"Be it Further Resolved, that the signature of any such designated person and the seal of the Company heretofore or hereafter affixed to any power of attorney or any certificate relating thereto by facsimile, and any power of attorney or certificate bearing facsimile signatures or facsimile seal shall be valid and binding upon the Company with respect to any bond or undertaking to which it is attached." (Each adopted at a meeting held on February 8, 2000).

In Witness Whereof, WESTFIELD INSURANCE COMPANY, WESTFIELD NATIONAL INSURANCE COMPANY and OHIO FARMERS INSURANCE COMPANY have caused these presents to be signed by their National Surety Leader and Senior Executive and their corporate seals to be hereto affixed this 02nd day of JANUARY A.D., 2020 .

Corporate Seals Affixed

WESTFIELD INSURANCE COMPANY
WESTFIELD NATIONAL INSURANCE COMPANY
OHIO FARMERS INSURANCE COMPANY

By: Gary W. Stumper, National Surety Leader and Senior Executive

State of Ohio
County of Medina ss.:

On this 02nd day of JANUARY A.D., 2020 , before me personally came Gary W. Stumper to me known, who, being by me duly sworn, did depose and say, that he resides in Hartford, CT; that he is National Surety Leader and Senior Executive of WESTFIELD INSURANCE COMPANY, WESTFIELD NATIONAL INSURANCE COMPANY and OHIO FARMERS INSURANCE COMPANY, the companies described in and which executed the above instrument; that he knows the seals of said Companies; that the seals affixed to said instrument are such corporate seals; that they were so affixed by order of the Boards of Directors of said Companies; and that he signed his name thereto by like order.

Notarial Seal Affixed

David A. Kotnik, Attorney at Law, Notary Public
My Commission Does Not Expire (Sec. 147.03 Ohio Revised Code)

State of Ohio
County of Medina ss.:

I, Frank A. Carrino, Secretary of WESTFIELD INSURANCE COMPANY, WESTFIELD NATIONAL INSURANCE COMPANY and OHIO FARMERS INSURANCE COMPANY, do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney, executed by said Companies, which is still in full force and effect; and furthermore, the resolutions of the Boards of Directors, set out in the Power of Attorney are in full force and effect.

In Witness Whereof, I have hereunto set my hand and affixed the seals of said Companies at Westfield Center, Ohio, this 26 day of March A.D., 2026

Secretary

Frank A. Carrino, Secretary

BPOAC2 (combined) (06-02)

VENDOR SUBMITTAL ACKNOWLEDGEMENT FORM

It is the policy of Pinellas County, Board of County Commissioners, to accept the lowest responsive and responsible or highest ranked submittal received meeting specifications. No changes requested by a vendor due to an error in pricing will be considered after the advertised solicitation opening date. By signing this Vendor Submittal Acknowledgment Form, vendors are attesting to their awareness and acceptance of this policy and agreeing to all solicitation of terms and conditions, including any insurance requirements.

Vendor Name (as shown on W-9): Air Mechanical & Service Corp.

Doing Business As (DBA) (if applicable): N/A

Mailing Address (as shown on W-9): 4311 W. Ida Street

City, State, Zip (as shown on W-9): Tampa, FL 33614

Vendor Email (primary company email): ssteele@amsco-ac.com

Remit to address (as shown on vendor invoice): Air Mechanical & Service Corp., PO Box 15379, Tampa, FL 33684

Federal Tax ID (FEIN) #: 59-2158902

Vendor Contact Information

Contact Name: Sean Steele

Phone Number: 727-743-1364

Email Address: ssteele@amsco-ac.com

Payment Terms: Net 45 (per Florida Statute F.S. 218.73) N/A **%** N/A **Days**

Deposit (if required) has been paid in the amount of $ N/A

Proper Corporate Identity is needed for a firm registered with the Florida Division of Corporations. Please visit *dos.myflorida.com/sunbiz/* for this information. It is essential to return a copy of your W-9 with your submittal.

I hereby agree to abide by all conditions of this solicitation, including all insurance requirements, and certify that I am authorized to sign this solicitation for the vendor.

Authorized Signature: 

Print Name: Andy Citek

Title: Vice President/Branch Manager

THIS FORM MUST BE RETURNED WITH YOUR RESPONSE

CONTRACTOR REFERENCES

Company Name: Air Mechanical & Service Corp.

Business Address: 4311 W. Ida Street, Tampa, FL 33614

Length of time the company has been in business: 44 years

How long in present location: 44 years

Total number of current employees: Full-Time: 235 **Part-Time:** N/A

Number of employees you plan to use to service this contract: 5-7

All references will be contacted by a County Designee via email, fax, or phone call to obtain answers to questions, as applicable before an evaluation decision is made. Vendor must have experience in work of the same or similar nature, and must provide references that will satisfy the County. Proposer must furnish a reference list of at least four (4) customers for whom they have performed similar services.

REFERENCE 1:	**REFERENCE 2:**
Company: Tower Realty Partners	Company: Pinellas County School Board
Address: 150 2nd Ave. N, #680, St. Petersburg, FL 33701	Address: 301 Fourth Street, Largo, FL 33770-3536
Telephone: 813-316-8117	Telephone: 727-547-7284
Contact Name: Zane Zinkosky	Contact Name: Doug Schoel, Mechanical Engineer
Contact Email: zzinkosky@towerrealtypartners.com	Contact Email: schoeld@pcsb.org
Company Email: N/A	Company Email: N/A
REFERENCE 3:	**REFERENCE 4:**
Company: City of Tampa, Facility Management Office	Company: City of Seminole
Address: 1550 N Grady Avenue, Tampa, FL 33607	Address: 9199 113th Street North, Seminole, FL 33772
Telephone: 813-393-7873	Telephone: 727-397-6383
Contact Name: Wally Stephens	Contact Name: Rodney Due, Public Works Director
Contact Email: wallace.stephens@tampagov.net	Contact Email: rdue, myseminole.com
Company Email: N/A	Company Email: N/A

THIS FORM MUST BE RETURNED WITH YOUR RESPONSE

ELECTRONIC PAYMENT (EPAYABLES)

Pinellas County, Board of County Commissioners, is offering faster payments. The County would prefer to make payment using credit card through the ePayables system.

Would your company accept to participate in the ePayables credit card program?

Yes ☐ **No** ☒

For more information about ePayables credit card program please visit the Purchasing Department website: https://pinellas.gov/epayables-2/

Company Name: Air Mechanical & Service Corp.

Phone Number: 813-363-2162

Email: acitek@amsco-ac.com

Signature:

Print Name: Andy Citek

THIS FORM MUST BE RETURNED WITH YOUR RESPONSE

AFFIDAVIT OF RELEASE AND GUARANTEE

STATE OF FLORIDA
COUNTY OF Pinellas

Before me, the undersigned authority, personally

appeared Andy Citek

who after being duly sworn, deposes and says:

All charges for labor, materials, supplies, lands, licenses and other expenses arising from

Bid Title: STAR Center AHU-104, -161, -162 Replacement Step 2

Bid No: 26-0306-ITB-Step 2

for which a lien or a demand against any payment bond might be filed, have been fully satisfied and paid or will be fully satisfied and paid promptly upon receipt of payment by the Contractor. The Contractor will fully indemnify, defend and save harmless the County from all demands, suits, actions, claims of lien or other charges filed or asserted against the County in connection with matters certified to herein.

On behalf of itself and its subcontractors, suppliers, material men, successors and assigns, the Contractor releases and waives all claims, demands, damages, costs and expenses, against the Board of County Commissioners of Pinellas County, relating in any way to the performance or payment of the above-numbered Agreement, for the period from the date of execution of the Agreement through and including the date of acceptance of Final Payment.

The Contractor is aware of contractual provisions for warranties and guarantees contained in the General Conditions of the above numbered Agreement, and acknowledges that those provisions shall have the same force and effect as if this Affidavit had not been executed, and understands that the County's remedies are not limited by same but are in addition to any other remedies provided by law.

This Affidavit is given in connection with the Contractors application for Final Payment.

FURTHER AFFIANT SAYETH NAUGHT.

(Affiant)

STATE OF FLORIDA
COUNTY OF Pinellas

The foregoing instrument was acknowledged before me this
March 26, 2026

By Andy Citek who is Personally known to me ~~and/or has produced~~

_____ As identification.

Julie A. Ris

Signature of Person Taking Acknowledgement

Julie A. Ris

Name of Acknowledger Types, Printed or Stamped

Notary Public State of Florida
Julie A. Ris
My Commission HH 773544
Expires 3/28/2030

QUALIFICATION SUBMITTAL FORM

Applicable only for contractors who are not pre-qualified with FDOT. The invitation to bid for this Project requires that this qualification submittal be included with the bid and completed in its entirety.

NOTE: BIDDER SHALL SUBMIT QUALIFICATION SUBMITTAL ON THE FORM PROVIDED HEREIN TO PROVIDE THE QUALIFICATION REQUIREMENTS AS SPECIFIED IN

Company Name: Please include below

City of Seminole, Florida

Project 1 (of similar type) Description Fire Station #29 HVAC Replacement

Owner of Project - Contact Information
City of Seminole, Florida Rodney Due, Public Works Director
Name
9199 113th Street North, Seminole, FL 33772
Address
727-397-6383 rdue@myseminole.com
Telephone Number and Email Address:

Project Manager - Contact Information
Rodney Due, Public Works Director
Name
9199 113th Street North, Seminole, FL 33772
Address
727-397-6383 rdue@myseminole.com
Telephone Number and Email Address:

Project Award Amount: $286,000.00

Final Project Total Amount: $153,269.70

Design Professional/Engineer Estimate: $ N/A

Change Orders $ -$140,480.00

Scheduled Completion Date 5-15-2023

Actual Completion Date 5-15-2023

QUALIFICATION SUBMITTAL FORM

QUALIFICATION SUBMITTAL FORM (continued)

Company Name: Please include below

City of Dunedin, Florida

Project 2 (of similar type) Description
Dunedin Community Center

Owner of Project - Contact Information
City of Dunedin, Michael Larson, project director
Name
737 Louden Ave., Dunedin, FL 34698
Address
727-298-3232 Michael.Larson@dunedin.gov
Telephone Number and Email Address:

Project Manager - Contact Information
Michael Larson, project director
Name
737 Louden Ave., Dunedin, FL 34698
Address
727-298-3232 Michael.Larson@dunedin.gov
Telephone Number and Email Address:

Project Award Amount: $ 619,837.00

Final Project Total Amount: $ 619,837.00

Design Professional/Engineer Estimate: $ N/A

Change Orders $ N/A

Scheduled Completion Date Early May, 2026

Actual Completion Date In Progress

QUALIFICATION SUBMITTAL FORM

QUALIFICATION SUBMITTAL FORM (continued)

Company Name: Please include below

City of Largo, Florida

Project 3 (of similar type) Description
Largo Performing Arts Building

Owner of Project - Contact Information
City of Largo, Lara Khoury
Name
105 Central Park Drive, Largo, FL 33770
Address
727-587-6727 lkhoury@largo.com
Telephone Number and Email Address:

Project Manager- Contact Information
City of Largo, Lara Khoury
Name
105 Central Park Drive, Largo, FL 33770
Address
727-587-6727 lkhoury@largo.com
Telephone Number and Email Address:

Project Award Amount: $ 214,988.37

Final Project Total Amount: $ 214,988.37

Design Professional/Engineer Estimate: $ N/A

Change Orders $ N/A

Scheduled Completion Date 6/1/2024

Actual Completion Date 6/1/2024

QUALIFICATION SUBMITTAL FORM

QUALIFICATION SUBMITTAL FORM (continued)

Company Name: Please include below

Pinellas County School Board

Project 4 (of similar type) Description
Ridgecrest Elementary School AHU Replacement

Owner of Project - Contact Information
PCSB, Doug Schoel, Head Engineer
Name
301 Fourth Street SW, Largo, FL 33770-3536
Address
727-547-7284 schoeld@pcsb.org
Telephone Number and Email Address:

Project Manager- Contact Information
Doug Schoel, Head Engineer
Name
301 Fourth Street SW, Largo, FL 33770-3536
Address
727-547-7284 schoeld@pcsb.org
Telephone Number and Email Address:

Project Award Amount: $ 114,490.00

Final Project Total Amount: $ 114,490.00

Design Professional/Engineer Estimate: $ N/A

Change Orders $ N/A

Scheduled Completion Date 7/31/24

Actual Completion Date 7/31/24

QUALIFICATION SUBMITTAL FORM

QUALIFICATION SUBMITTAL FORM (continued)

Applicable only for contractors who are not pre-qualified with FDOT

The invitation to bid for this Project requires that this qualification submittal be included with the proposal and completed in its entirety.

Vendor Information			
Firm Name: Air Mechanical & Service Corp.			
Street Address: 4311 W. Ida Street	City: Tampa	State: FL	ZIP: 33614
Additional Info:			

Officer/Director Information			
Officer/Director/Member: John L. Byers	Title: President	DOB:	
Notes: Owner			
Officer/Director/Member: Neil Connelly	Title: General Manager	DOB:	
Notes:			
Officer/Director/Member: Lynn Goldstein	Title: Secretary	DOB:	
Notes:			
Officer/Director/Member: Andy Ctiek	Title: Vice Pesident	DOB:	
Notes:			
Officer/Director/Member	Title:	DOB:	
Notes:			
Additional Information: (On Vendor or Contract Requirements)			

BID SUBMITTAL OFFICERS FORM

Each Bid by an individual or firm shall state the name and address of each person who owns an interest therein, and, if any corporation, the name and addresses of its officers, or if an LLC, the name and address of its members. Bids shall be signed by the person or member of the firm making the same, and if a corporation, by an authorized officer or agent, subscribing the name of the corporation, together with his own name and the corporate seal.

The Bidder further agrees to execute the Agreement within 10 calendar days after receipt of notice of award, and within the time frame of the Agreement.

The Bidder further agrees to bear the full cost of maintaining all Work until the final acceptance.

Accompanying the Bid is a Bid Guarantee, meeting the requirements described in the Instruction to Bidders.

The Contractor's address and principal place of business is:

Air Mechanical & Service Corp.
4311 W. Ida Street
Tampa, FL 33614

If Contractor is a Corporation, list the names, titles and business addresses of its President, Secretary and Treasurer.

PRESIDENT John L. Byers
Printed Name
ADDRESS:
1108 W. Alva Street
Tampa, FL 33614

SECRETARY Lynn Goldstein
Printed Name
ADDRESS:
4311 W. Ida Street
Tampa, FL 33614

TREASURER Lynn Goldstein
Printed Name
ADDRESS:
4311 W. Ida Street
Tampa, FL 33614

QUALIFICATION FORMS – BID SUMMARY

Said Corporation is qualified to do business in the State of Florida.

Air Mechancial & Service Corp. By _____
Corporation Name

President (Andy Citek,Vice President)

CORPORATE SEAL

_____
Andy Citek Qualifying Agent

CMC1250253
Contractor's Registration or Certificate No. issued by the State of Florida

If Contractor is not a corporation, list the name(s) and business address(es) of its owner(s), joint venturers or partners:

Name _____ **ADDRESS:** _____
Printed Name

Name _____ **ADDRESS:** _____
Printed Name

Name _____ **ADDRESS:** _____
Printed Name

The said company or business entity is a sole proprietorship, partnership, or joint venture and is trading and doing business as

_____
Company Name

By: _____
Name of Firm or Qualifying Agent

_____
Contractor's Registration or Certification No. issued by the State of Florida

SAM.GOV Entity Registration

Air Mechanical & Service Corp-S43TF6SMWJV5/0KES4

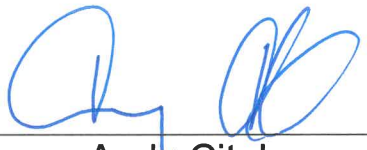
COMMON CARRIER ATTESTATION

In accordance with section 908.111, Florida Statutes, the undersigned, on behalf of Air Mechanical & Service Corp. (the "Contractor"), attests and agrees they are in conformity with Florida Statute § 92.525 and is not willfully providing and will not willfully provide any service during the contract term in furtherance of transporting a person into this state knowing that the person is an unauthorized alien, except to facilitate the detention, removal, or departure of the person from this state or the United States.

For purposes of this Attestation, the Contractor is a "Common carrier" if it is a person, firm, or corporation that undertakes for hire, as a regular business, to transport persons or commodities from place to place, offering his or her services to all such as may choose to employ the common carrier and pay his or her charges.

The undersigned must be an authorized representative of the Contractor who can execute this Attestation on the Contractor's behalf.

Under penalties of perjury, I Andy Citek, declare that I have read the foregoing Common Carrier Attestation and that the facts stated in it are true.

Signature: 

Print Name: Andy Citek

Date: March 26, 2026

Federal Work Authorization User Identification No.: 540879

Name of Pinellas County Contract and Contract No.: STAR Center AHU, 26-0306-ITB-C

COMMON CARRIER TERMINATION

The County reserves the right to terminate the associated agreement, for cause, if the Contractor is found in violation of its attestation above.

HUMAN TRAFFICKING AFFIDAVIT

In accordance with section 787.06 (13), Florida Statutes, the undersigned, on behalf of Air Mechanical & Service Corp. (the "Contractor"), hereby attests that the Contractor does not use coercion for labor or services as defined in Section 787.06, Florida Statutes.

The undersigned must be an authorized representative of the Contractor who can execute this affidavit on the Contractor's behalf.

Under penalties of perjury, I Andy Citek, declare that I have read the foregoing affidavit and that the facts stated in it are true.

Signature: _____

Print Name: Andy Citek

Date: March 26, 2026

Federal Work Authorization User Identification No.: 540879

Name of Pinellas County Contract and Contract No.: STAR Center AHU, 26-0306-ITB-C

STATE OF FLORIDA COUNTY OF PINELLAS

The foregoing instrument was acknowledged before me by means of 1) physical presence ☑ or 2) online notarization ☐, this March 26, 2026 (date) by Andy Citek of Air Mechanical & Service Corp., a Florida corporation, on behalf of the corporation.

He/~~she~~ is personally known to me ~~or has produced~~ _____ as identification.

[Notary Seal]

Notary Public State of Florida
Julie A. Ris
My Commission HH 773544
Expires 3/28/2030

Notary Public: Julie A. Ris

Name typed, printed, or stamped: Julie A. Ris

My Commission Expires: 03/28/2030

Foreign County of Concern Affidavit

I hereby certify that Air Mechanical & Service Corp. (the "Contractor") is not an entity owned by the government of a Foreign Country of Concern; the government of a Foreign Country of Concern does not have a Controlling Interest in the entity; nor is the entity organized under the laws of or has its principal place of business in a Foreign Country of Concern, and is otherwise in full compliance with Section §287.138, Florida Statutes.

This Affidavit must be completed by an authorized representative of the Contractor submitting a bid, proposal, reply to, or entering into, renewing, or extending, a contract with the County, which would grant the entity access to an individual's Personal Identifying Information.

For purposes of this Affidavit:

"Foreign Country of Concern" means the People's Republic of China, the Russian Federation, the Islamic Republic of Iran, the Democratic People's Republic of Korea, the Republic of Cuba, the Venezuelan regime of Nicolás Maduro, or the Syrian Arab Republic, including any agency of or any other entity of significant control of such foreign country of concern.

"Controlling Interest" means possession of the power to direct or cause the direction of the management or policies of a company, whether through ownership of securities, by contract, or otherwise. A person or entity that directly or indirectly has the right to vote 25 percent or more of the voting interests of the company or is entitled to 25 percent or more of its profits is presumed to possess a controlling interest.

Under penalties of perjury, I declare that I have read the foregoing affidavit and that the facts stated in it are true.

Signature: _____

Print Name: Andy Citek

Date: March 26, 2026

Federal Work Authorization User Identification No.: 540879

Name of Pinellas County Contract and Contract No.: STAR Center AHU, 26-0306-ITB-C

STATE OF FLORIDA COUNTY OF PINELLAS

The foregoing instrument was acknowledged before me by means of 1) physical presence ☑ or 2) online notarization ☐, this March 26, 2026 (date) by Andy Citek of Air Mechanical & Service Corp., a Florida corporation, on behalf of the corporation.

He/~~she~~ is personally known to me ~~or has produced~~ _____ as identification.

[Notary Seal]

Notary Public State of Florida
Julie A. Ris
My Commission HH 773544
Expires 3/28/2030

Notary Public: _____

Name typed, printed, or stamped: Julie A. Ris

My Commission Expires: 03/28/2030

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 12/23/2025

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER The Baldwin Group Southeast LLC 4211 W Boy Scout Blvd Ste 800 Tampa FL 33607 License#: L002281	**CONTACT NAME:** **PHONE (A/C, No, Ext):** 813-984-3200 **FAX (A/C, No):** **E-MAIL ADDRESS:** Certificates@baldwin.com
INSURED Air Mechanical & Service Corp. 4311 W Ida St. Tampa FL 33614 AIRMECH-01	

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Bridgefield Casualty Insurance	13269
INSURER B : Travelers Casualty Insurance C	19046
INSURER C : Travelers Casualty & Surety Co	19038
INSURER D : The Continental Insurance Comp	35289
INSURER E :	
INSURER F :	

COVERAGES **CERTIFICATE NUMBER:** 1635965352 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
B	X COMMERCIAL GENERAL LIABILITY [ ] CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: X POLICY [X] PRO-JECT [ ] LOC OTHER:	Y	Y	VTC2K CO 3K991125 IND 26	1/1/2026	1/1/2027	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG $	$ 1,000,000 $ 300,000 $ 15,000 $ 1,000,000 $ 2,000,000 $ 2,000,000 $
B	AUTOMOBILE LIABILITY X ANY AUTO OWNED AUTOS ONLY [ ] SCHEDULED AUTOS X HIRED AUTOS ONLY [X] NON-OWNED AUTOS ONLY	Y	Y	VTC2H CAP 3K991137 TIA 26	1/1/2026	1/1/2027	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) $	$ 1,000,000 $ $ $ $
C	X UMBRELLA LIAB [X] OCCUR EXCESS LIAB [ ] CLAIMS-MADE DED [X] RETENTION $ 10,000			CUP 3K991150 26 25	1/1/2026	1/1/2027	EACH OCCURRENCE AGGREGATE $	$ 5,000,000 $ 5,000,000 $
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N [N] N/A If yes, describe under DESCRIPTION OF OPERATIONS below		Y	830 57602	1/1/2026	1/1/2027	X PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ 1,000,000 $ 1,000,000 $ 1,000,000
D	Leased/Rented Equipment*			7036363263	1/1/2026	1/1/2027	Limit / Max Per Item	$350,000/$25,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

*Leased/Rented Equipment Deductible $1,000.

CERTIFICATE HOLDER

For Informational Purposes Only

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Ron DeSantis, Governor

Melanie S. Griffin, Secretary

STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

CONSTRUCTION INDUSTRY LICENSING BOARD

THE GENERAL CONTRACTOR HEREIN IS CERTIFIED UNDER THE
PROVISIONS OF CHAPTER 489, FLORIDA STATUTES

BYERS, JOHN L

AIR MECHANICAL & SERVICE CORP.
4311 W IDA ST
TAMPA FL 33614

LICENSE NUMBER: CGC1522709

EXPIRATION DATE: AUGUST 31, 2026

Always verify licenses online at MyFloridaLicense.com

ISSUED: 08/12/2024

Do not alter this document in any form.

This is your license. It is unlawful for anyone other than the licensee to use this document.

Ron DeSantis, Governor

Melanie S. Griffin, Secretary

STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

CONSTRUCTION INDUSTRY LICENSING BOARD

THE MECHANICAL CONTRACTOR HEREIN IS CERTIFIED UNDER THE
PROVISIONS OF CHAPTER 489, FLORIDA STATUTES

BYERS, JOHN L

AIR MECHANICAL & SERVICE CORP.
4311 W IDA ST
TAMPA FL 33614

LICENSE NUMBER: CMC1250253

EXPIRATION DATE: AUGUST 31, 2026

Always verify licenses online at MyFloridaLicense.com

ISSUED: 08/01/2024

Do not alter this document in any form.

This is your license. It is unlawful for anyone other than the licensee to use this document.

INVITATION TO BID - CONSTRUCTION (ITB-C)

26-0306-ITB-C

STAR CENTER AHU -104, -161, -162 REPLACEMENT

Pinellas County

Pinellas County Courthouse Annex Bldg., Sixth Floor

Clearwater, FL 33765

THE MISSION OF PINELLAS COUNTY

"Pinellas County Government is committed to progressive public policy, superior public service, courteous public contact, judicious exercise of authority and sound management of public resources to meet the needs and concerns of our citizens today and tomorrow."

The proposal due date below is subject to change. This informal solicitation may be closed once adequate competition is received.

ISSUE/RELEASE DATE: February 20, 2026

PROPOSAL SUBMISSION DEADLINE: March 10, 2026, 3:00 pm

RESPONSES MUST BE SUBMITTED ELECTRONICALLY TO:

https://procurement.opengov.com/portal/pinellasfl

Pinellas County

INVITATION TO BID - CONSTRUCTION (ITB-C)

STAR Center AHU -104, -161, -162 Replacement

Table of Contents

Attachments:

A - OpenGov Fillable- Final

B - E-Verify_Affidavit

C - STAR_CENTER_AHU_SPECS_100%CD_12-15-2025_SS

D - STAR_Center_AHu-104-161-162_Replacement_Drawings_S&S_12-15-2025_

E - Sample Performance and Payment Bonds 26-0306

F - Sample Change Order

G - Sample Application for Payment

H - STAR_Center_Site_Plan_for_pre-bid_meeting

I - QUALIFICATION SUBMITTAL FORM Non FDOT

J - Sample Agreement-26-0306

T - Affdavit_of_Release_and_Guarantee

V - SBE_Compliance_Form

W - Florida Trench Safety Form

1. Notice

INVITATION TO BID

SUBMITTALS ARE OPENED PUBLICLY AND ARE ACCEPTED VIA OPENGOV

ITB - Construction 2-Step

26-0306-ITB-C

STAR Center AHU -104, -161, -162 Replacement

ALL QUESTIONS MUST BE SUBMITTED IN OPENGOV WITHIN THE QUESTION & ANSWER SECTION.

SOLICITATION MEETINGS: Site Visit: Mandatory; Pre-Conference: Mandatory

SUBMITTALS MAY NOT BE WITHDRAWN FOR120 DAYS AFTER OPENING DATE.

PUBLIC MICROSOFT TEAMS MEETING -Join the meeting now @ 3:30 on the Bid 2 Submittal Date.

Meeting ID: 280 743 770 014 5
Passcode: ur9MW9jK

Or call in (audio only)

+1 813-644-3116

Phone Conference ID: 171010815#

The Purchasing and Risk Management Division for the Pinellas County Board of County Commissioners has transitioned to OpenGov Procurement for contractor/vendor registration, and for posting, submitting and receiving bids, quotes and proposals for active solicitations. Contractors/Vendors must register with OpenGov Procurement (https://procurement.opengov.com/signup) to participate in active County solicitations.

Should you need technical assistance with OpenGov, the following options are available:

Phone: (855) 680-4747, 8 a.m. to 8 p.m., Monday - Friday

Email:procurement-support@opengov.com

Chat is available in the OpenGov application

Web:https://help.procurement.opengov.com

Please Note:

From time to time, addenda may be issued to this solicitation. Any such addenda will be posted to https://procurement.opengov.com/portal/pinellasfl. Receipt of addenda confirmation is required in OpenGov.

AUTHORIZED BY:

Merry Celeste, CPPB

Division Director of Purchasing

2. Introduction

2.1. Summary

The project consist of full replacement of three air handling units (AHU). One chilled water AHU (AHU-104) is located on the roof and Two chilled water AHUs (AHU-161 and AHU-162) are located indoors on a hanging structural platform. These two units will be replaced with one new unit. All new units will get new Direct Digital Controls.

2.2. Background

Replace outdated and inefficient chilled water air handling units that are in very poor condition since they are past their operational service life. The existing units are no longer dependable for the Building 100 tenants. Air Conditioning is critical to Tenant production operations and providing acceptable indoor comfort conditions for the occupants.

2.3. Contact Information

Department:
ECONOMIC DEVELOPMENT

2.4. Timeline

Issue Date	February 20, 2026
Site Visit / Pre-Conference Information (Mandatory)	February 26, 2026, 10:00am Agenda 11400 Belcher RD, Largo, FL 33777 See the Agenda for the parking location.
Step 1 Question Submission Deadline	March 4, 2026, 3:00pm
Step 1 Qualification Submission Deadline	March 10, 2026, 3:00pm
Step 2 Bid Submission Deadline	March 26, 2026, 3:00pm

3. Definitions - 2-Step Construction

Whenever the following terms, or pronouns used in place of them, are used in these Contract Documents they shall have the meanings given below:

Addendum: A modification, revision or clarification of the Plans or other Contract Documents, issued by the Purchasing Department and distributed to prospective Bidders before the bid opening.

Approved Equal: An approved equivalent item that is approved in writing, (via an Addendum to the Agreement), prior to the Bid Opening. Bidder must submit their proposed equivalent item no later than question deadline date on Section 2 Introduction. Any information received after this deadline will not be considered.

Bid Publication: The date on which public notice is made to request a bid/request for proposal for this Project.

Bid/Request for Proposal: The offer to perform the Work described in the Contract Documents at a specified cost.

Architect/Design Professional/Engineer of Record: The Professional Architect/Design Professional/Engineer or Architectural/Design Professional/Engineering Firm contracted by the County and registered in the State of Florida who develops criteria and concept for the Project, performs the analysis and is responsible for the preparation of the Contract Plans and Specifications. The Architect/Design Professional/Engineer of Record will be a Consultant retained by the County or a county in-house staff member.

Board of County Commissioners: Governing body of Pinellas County hereinafter referred to as the Board.

Calendar Day: Every day shown on the calendar, ending and beginning at Midnight.

Change Order: A written order authorized by the Board or County Administrator, issued by the Design Professional/Engineer/Project Manager, and accepted by the Contractor directing certain changes, additions or reductions in the Work or in the materials used.

Commencement Date: Date established in the Notice to Proceed. Contractor shall commence the Work within fifteen (15) consecutive calendar days or as mutually agreed by the Parties, from the date of the Notice to Proceed.

Consultant: The Professional Engineer/Design Professional or Engineering Firm registered in the State of Florida who performs Professional Engineering Services for the County, other than County personnel. The Consultant may be the Design Professional/Engineer of Record or may provide services through and be subcontracted to the Design Professional/Engineer of Record or maybe providing construction engineering and inspection (CEI) services, as applicable.

Contractor: The General Contractor, the Individual, Partnership or Corporation agreeing to do the Work for the County as Prime Contractor. The Contractor may be refereed to interchangeably as Vendor and/or Bidder in this document pending on the contracting phase governed herein.

Contract Documents: All documents referred to herein in addition to all duly executed and issued addenda, legal advertisements and change orders.

Design Professional: A collective term intended to apply to “Architect/Engineer of Record”, licensed and registered in the State of Florida, the prime party responsible for the design, engineering, and construction documentation of the project and contracted directly with the Owner.

Engineer: The Engineer, a staff member of the County or his duly authorized representative, acting on behalf of the County.

FDOT: The Florida Department of Transportation.

FDOT Specifications: Florida Department of Transportation, “STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION”, (latest edition at time of advertisement), and all supplemental specifications thereto.

Final Acceptance: Whenever the Work provided for under the Agreement has been completely performed by the Contractor, and the final inspection has been made by the Design Professional/Engineer/Project Manager.

Final Completion: The point in which all Work is complete and all other Agreement requirements have been satisfied.

Inspector: An authorized representative of the Design Professional/Engineer/Project Manager, assigned to make any or all necessary inspections of the Work performed, and materials furnished by the Contractor.

Man Day: A unit of measure for work by one person in a calendar day.

Notice of Award: The formal document informing the Contractor of its successful selection to construct the Project.

Notice to Proceed: Formal written document informing the Contractor to begin the Work, and notifying the Contractor of the architect, project engineer and other agency or person to which the Contractor may submit its payment request or invoice.

Owner: Is Pinellas County, a political subdivision of the State of Florida, herein after referred to as the County.

PCU - Standard Specifications: Pinellas County Utilities (PCU) "Material Specification Manual", "Technical Specifications", "Pump Station Standard Details" and "Standard Details" as described and defined on the Utility Department's website at www.pinellascounty.org/utilities under the Engineering header. Contractor's bid must be based on those standards that are in place as of the Bid Publication date.

PC Special Provisions: Specifications approved by Pinellas County that modify or amend the Pinellas County Standard Technical Specifications for Roadway and General Construction (latest edition) ("Standard Specifications"), setting forth conditions that vary from the Standard Specifications and are applicable to a specific type of Project, or a specific set of conditions.

PC Std. Tech. Spec.: Pinellas County Standard Technical Specifications for Roadway and General Construction (latest edition at time of advertisement) shown on the Pinellas County website.

PC Supplemental Specifications: Specifications approved by Pinellas County that are in addition to the Pinellas County Standard Technical Specifications for Roadway and General Construction (latest edition) ("Standard Specifications") setting forth conditions that are additional to the Standard Specifications and are applicable to a specific type of Project, or a specific set of conditions.

Plans: Approved drawings or reproductions thereof, showing the location, character, dimension and details of the work to be done as issued by the Design Professional/Engineer.

Project: All Work, materials or equipment (whether or not specifically called for) required to produce the intended result as described within the Contract Documents.

Project Manager: The individual designated by the Owner to represent the owner on all administrative matters related to the Project.

Proposal and Bid Submittal Sheets: Form, as required in Section 9 Pricing Proposal.

Punch List: The written compilation of those items identified by the Design Professional/Engineer/Project Manager after Substantial Completion is achieved, which are required to render complete, satisfactory and acceptable the Project (or phase of a Project).

Record Drawings: Record Drawings are a set of signed/sealed CONTRACT PLANS that are maintained by the Contractor for the express use of recording AS-BUILT INFORMATION.

Regular Workday or Business Day: Any calendar day from 7:00 AM to 7:00 PM except a Saturday, Sunday or recognized holiday.

Schedule of Values: The individual values as set forth by the Contractor as payment for the bid quantity units identified on the bid submittal sheets. The total of the extended units in the Schedule of Values determines the Agreement Amount. The Agreement Amount may only be modified by Change Order approved by the Board, or County Administrator.

Scope of Work: The general intent of the Work to be accomplished as defined by the Project Plans and Specifications.

Special Notices: Specific clauses adding to or revising the Standard Specifications, setting forth conditions varying from or additional to the Standard Specifications, for a specific Project.

Specifications: The directions, provisions and requirements contained herein, together with all stipulations contained in the plans or Contract Documents, setting out or relating to the method and manner of performing the Work, or to the quantities and qualities of materials and labor to be furnished under the Agreement.

Substantial Completion: The date of "Substantial Completion" of the Work (or designated portions thereof) is the date certified by the Consultant and approved by the Design Professional/Engineer/Project Manager when construction is sufficiently complete, in accordance with the Contract Documents, so the county can occupy or utilize the Work (or designated portions thereof) for the use for which it was intended.

Survey Crew Day: A unit of measurement for Work by a survey crew in a calendar day.

Survey and Layout Plan: See Section 5 Special Conditions.

Technical Special Provisions: Specifications prepared, signed and sealed by the Consultant. These would be listed in the document hierarchy ahead of any other "Standard Specifications", if applicable.

Unforeseen Work: Conditions encountered during the performance of the Work, sub-surface or otherwise concealed, or of an unusual nature, which differ materially from those indicated in the Contract Documents.

Unspecified: A pay item included for usage as directed by the County, and for usage under conditions or circumstances unforeseen at the time of Agreement.

Work: All labor, materials & incidentals required for the construction of the improvement for which the Agreement is made, including superintendence, use of equipment & tools, and all services & responsibilities prescribed or implied, which are necessary for the complete performance by the Contractor of his obligations under the contact. Unless otherwise specified herein or in the Agreement, all costs of liability and of performing the Work shall be at the Contractor's expense.

4. Instructions & General Conditions for Submittals

4.1. INSTRUCTIONS & PROCEDURES

A. **PREPARATION OF SUBMITTAL** - Submittal will be prepared in accordance with the following:

1. Submittals must be uploaded on forms furnished, utilizing the OpenGov procurement website. Failure to comply could result in the submission being rejected.
2. If price is factor, unit prices must be shown and where there is an error in extension of price, the unit price will govern.
3. Alternate submittals will not be considered unless authorized by the solicitation.
4. Proposed delivery time must be shown and any date calculations must include weekends and holidays.
5. Contractor is advised that exceptions to any terms and conditions contained or referenced in this solicitation must be stated with specificity in its response to the solicitation. Contractor is deemed to have accepted and to be bound by the solicitation and referenced agreement terms and conditions that contractor does not take exception to in its response. The County reserves the right to modify or add terms and conditions based upon the exceptions stated by the contractor, or to declare any terms and conditions non-negotiable, as determined by the County in its sole discretion.
6. Contractors will thoroughly examine the drawings, specifications, schedule, instructions and/or all other solicitation documents.
7. Contractors will make all investigations necessary to thoroughly inform themselves regarding plant and facilities for delivery of material and equipment as required by the solicitation. Plea of ignorance by the contractor of conditions that exist or that may hereafter exist as a result of failure or omission on the part of the contractor to make the necessary examinations and investigations, or failure to fulfill in every detail the requirements of the solicitation documents, will not be accepted as a basis for varying the requirements of the County or the compensation to the contractor.
8. Contractors are advised that all County solicitations are subject to all legal requirements provided for in the Purchasing Ordinance and/or State and Federal Statutes.

B. **SUBMITTAL METHOD & FORMAT**

1. Submittals must be uploaded utilizing the OpenGov procurement website (https://procurement.opengov.com/portal/pinellasfl). Failure to comply could result in the submittal being rejected.
2. Submittals must be uploaded in the Vendor Questionnaire section of this solicitation. Submittals sent via email, facsimile, or delivered in-person will not be considered.

3. The preferred format for submittal is PDF conversion from your source files (to minimize file size and maximize quality and accessibility) rather than scanning. Instructions for Providing Files in PDF Format to Pinellas County Government:

    a. How do I convert my files to PDF format?

    b. Answer- If you have a program such as Adobe Acrobat, creating a PDF of any file is a simple print function. Rather than printing to a traditional printer, the file converts to a PDF format copy of your original. Any program (such as Word, PowerPoint, Excel, etc.) can be converted this way by simply selecting the print command and choosing PDF as the printer.

    c. Should I scan everything and save as PDF?

    d. Answer- Not unless you are scanning with OCR (optical character recognition). Scanning will create unnecessarily large files because a scan is just a picture of a page rather than actual page text. Furthermore, the result of scanning is that your pages will not look nearly as "clean" or professional as simply using the print to PDF method from the program from which the file originates. Additionally, since scan pages are pictures of text, not really text, they may not be considered accessible* under Federal ADA guidelines (*unless the scans are OCR.)

C. **SUBMITTALS FROM RELATED PARTIES OR MULTIPLE SUBMITTALS RECEIVED FROM ONE CONTRACTOR**

1. Where two (2) or more related parties each upload a submittal, or multiple submittals are received from one (1) contractor, for any solicitation, such submittals will be judged non-responsive. Related parties mean contractors or the principles thereof, which have a direct or indirect ownership interest in another contractor for the same solicitation or in which a parent company or the principles thereof of one (1) contractor have a direct or indirect ownership interest in another contractor for the same solicitation.

D. **INTEGRITY OF SOLICITATION DOCUMENTS**

1. Contractors will use the original solicitation form(s) provided by the Purchasing & Risk Management Division and enter information only in the spaces where a response is requested. Contractors may use an attachment as an addendum to the solicitation form(s) if sufficient space is not available on the original form for the contractor to enter a complete response. Any modifications or alterations to the original solicitation documents by the contractor, whether intentional or otherwise, will constitute grounds for rejection of a solicitation. Any such modifications or alterations a contractor wishes to propose must be clearly stated in the contractor's submittal response and presented in the form of an addendum to the original solicitation documents.

E. **LATE SUBMISSION OR MODIFICATIONS**

1. Submittals and modifications received after the time set for the submission will not be considered. This upholds the integrity of the process.

2. Modifications in writing received prior to the time set for the submittal will be accepted.

F. **WITHDRAWAL OF SUBMITTAL**

1. The submittal may be withdrawn prior to the solicitation opening date, however, a submittal may not be withdrawn for a period of time as specified in this solicitation document.

G. **WRITTEN REQUESTS FOR INTERPRETATIONS/CLARIFICATIONS**

1. No oral interpretations will be made to any firms as to the meaning of specifications or any other contractor documents. All questions pertaining to the terms and conditions or scope of work of this solicitation must be sent in writing (electronically) to the Purchasing and Risk Management Division and received by the date specified in solicitation. Responses to questions may be handled as an addendum if the response would provide clarification to requirements of the solicitation. All such addenda will become part of the agreement documents. The County will not be responsible for any other explanation or interpretation of the proposed solicitation made or given prior to the award of the agreement. The Purchasing and Risk Management Division will be unable to respond to questions received after the specified time frame.

H. **REJECTION OF SUBMISSION**

1. The County may reject a submittal if:

   a. The contractor incorrectly states or conceals any material fact in the solicitation.

   b. The solicitation does not strictly conform to the law or requirements of solicitation including insurance requirements.

   c. The solicitation is conditional, except that the contractor may qualify its submittal for acceptance by the County on an "all or none" basis, or a "low item" basis. An "all or none" basis submittal must include all items upon which the contractor was invited.

2. The respective constitutional officer, County Administrator, on behalf of the Board of County Commissioners or within their delegated financial approval authority, or Director of Purchasing, within their delegated financial approval authority, has the authority when the public interest will be served thereby to reject all submittals or parts of submittals at any stage of the procurement process through the award of an agreement.

3. The County reserves the right to waive minor informalities or irregularities in any submittal.

I. **PUBLIC REVIEW AT OPENING**

1. Pursuant to Florida Statute, Section 119.071(1)(b)2, all submittals will be subject to review as public records after 30-days from opening, or earlier if an intended decision is reached before the thirty-day period expires. Unless a specific exemption exists, all documents submitted will be released pursuant to a valid public records request. All trade secrets claims must be dispositively determined by a court of law prior to trade secret protection being granted.

J. **TABULATION INQUIRIES**

1. Inquiries relating to the results of this solicitation, prior to the official award by the Pinellas County Board of County Commissioners may be made by visiting OpenGov or calling the Purchasing Office after 30 days to comply with Florida Statute, Section 119.071(1)(b)2.

K. **EQUAL OPPORTUNITY & COUNTY GIFT/GRATUITY POLICY**

1. Pinellas County is committed to a workplace, which is free from harassment or discrimination of any kind. CONTRACTOR and its agents are expected to conduct themselves accordingly in all interactions related to the Agreement. All employees of Pinellas County are prohibited from accepting gifts and/or gratuities from Contractors. CONTRACTOR agrees to ensure that its employees, subcontractors, consultants and other agents honor this policy.

4.2. PRE-CONFERENCE

A. **PRE-CONFERENCE (Mandatory & Non-Mandatory)**

1. The County may at its discretion hold a pre-conference to address all respondent questions pertaining to the solicitation or technical specifications. Solicitation suggestions or modifications may be discussed with County representatives at this meeting and may be considered by representatives as possible addenda to the solicitation. The County may elect, based on the scope of a specific project, to make the pre-conference mandatory, which will be specified in the “Special Terms & Conditions” section of this solicitation document. If the pre-conference is advertised as mandatory, any responses received from respondents who did not attend the mandatory pre-conference will be judged non-responsive and will not be considered for award.

4.3. JOINT VENTURES

Contractors intending to submit as a joint venture are required to have filed proper documents with the Florida Department of State, the Division of Professions, Construction Industry Licensing Board and any other state or local licensing Agency prior to submitting (see Section 489.119 Florida Statutes). Joint ventures must provide an affidavit attesting to the formulation of a joint venture and provide either proof of incorporation as a joint venture or a copy of the formal joint venture agreement between all joint venture parties, indicating their respective roles, responsibilities and levels of participation for the project.

4.4. AWARD OF CONTRACT - ITB

A. The contract will be awarded to the lowest responsive, responsible bidder whose submittal, conforming to the solicitation, is most advantageous to Pinellas County, price and other factors considered. For Invitation to Bid for Sale of Real or Surplus Property, award will be made to the highest and most advantageous bid including price and other factors considered.

B. The County reserves the right to accept and award item by item, and/or by group, or in the aggregate, unless the respondent qualifies their bid by specified limitations. See Rejection of Submission.

C. If two or more bids received are for the same total amount or unit price or in the case of proposals, the qualifications, quality and service are equal then the contract will be awarded by drawing lots in public.

D. Prices quoted must be Free on Board (FOB) Pinellas County with all transportation charges prepaid unless otherwise specified in the Invitation to Bid.

4.5. PROTEST PROCEDURE

Protest procedures are governed by Pinellas County Code Section 2-162, which states:

Right to Protest. "A vendor who is aggrieved by the contents of the bid or proposal package, or a vendor who is aggrieved in connection with the recommended award on a bid or proposal solicitation, may file a written protest to the director, as provided herein. This right to protest is strictly limited to those procurements of goods and/or services solicited through invitations to bid or requests for proposals, including solicitations pursuant to F.S. § 287.055, the "Consultants' Competitive Negotiation Act." No other actions or recommendations in connection with a solicitation can be protested, including: (i) requests for quotations, negotiations, qualifications or letters of interest; (ii) rejection of some, all or parts of bids or proposals; (iii) disqualification of respondents or proposers as non-responsive or non-responsible; or (iv) recommended awards less than the mandatory bid or proposal amount. Protests failing to comply with the provisions of this section will not be reviewed."

"Posting. The purchasing department will post the recommended award on or through the departmental website."

Requirements to protest.

"If the protest relates to the content of the bid or proposal package, a formal written protest must be filed no later than 5:00 p.m. EST on the fifth full business day after issuance of the bid or proposal package."

"If the protest relates to the recommended award of a bid or proposal, a formal written protest must be filed no later than 5:00 p.m. EST on the fifth full business day after posting of the award recommendation."

"The formal written protest shall identify the protesting party and the solicitation involved; include a statement of the grounds on which the protest is based; refer to the statutes, laws, ordinances or other

legal authorities which the protesting party deems applicable to such grounds; and specifically request the relief to which the protesting party deems itself entitled by application of such authorities to such grounds.".

"A formal written protest is considered filed with the county when the purchasing department receives it. Accordingly, a protest is not timely filed unless it is received within the time specified above by the purchasing department. Failure to file a formal written protest within the time period specified shall constitute a waiver of the right to protest and result in relinquishment of all rights to protest by the respondent or proposer."

"Sole remedy. These procedures shall be the sole remedy for challenging the content of the bid or proposal package or the recommended award."

"Lobbying. Protestors and anyone acting on their behalf, are prohibited from attempts to influence, persuade, or promote a bid or proposal protest through any other channels or means, and contacting any county official, employee, advisory board member, or representative to discuss any matter relating in any way to the solicitation being protested, other than the purchasing department's or county attorney's office to address situations such as clarification and/or pose questions related to the procurement process. The prohibitions provided for herein shall begin with the filing of the protest and end upon the final disposition of the protest; provided, however, at all times protestors shall be subject to the procurement lobbying prohibitions in section 2-189 of this Code. Failure to adhere to the prohibitions herein shall result in the rejection of the protest without further consideration."

"Time limits. The time limits in which protests must be filed as specified herein may be altered by specific provisions in the bid or proposal."

"Authority to resolve. The director shall resolve the protest in accordance with the documentation and applicable legal authorities and shall issue a written decision to the protestor no later than 5:00 p.m. EST on the tenth full business day after the filing thereof."

"Review of director's decision."

"The protesting party may request a review of the director's decision to the county administrator by delivering written request for review of the decision to the director by 5:00 p.m. EST on the fifth full business day after the date of the written decision. The written notice shall include any materials, statements, and arguments which the respondent or proposer deems relevant to the issues raised in the request to review the decision of the director."

"The county administrator shall issue a decision in writing stating the reason for the action with a copy furnished to the protesting party no later than 5:00 p.m. EST on the seventh full business day after receipt of the request for review. The decision shall be final and conclusive as to the county unless a party commences action in a court of competent jurisdiction."

"Stay of procurement during protests. There shall be no stay of procurement during protests."

(Ord. No. 94-51, § 5, 6-7-94; Ord. No. 04-87, § 1, 12-7-04; Ord. No. 14-11, § 2, 2-11-14; Ord. No. 18-34, 10-23-18)

4.6. ADA REQUIREMENT FOR PUBLIC NOTICES

Persons with disabilities requiring reasonable accommodation to participate in this proceeding/event, should call 727-464-4062 (voice/tdd) fax 727-464-4157, not later than seven days prior to the proceeding.

4.7. ADDITIONAL REQUIREMENTS

The County reserves the right to request additional goods or services relating to this agreement from the contractor. When approved by the County as an amendment to this agreement and authorized in writing, the contractor will provide such additional requirements as may become necessary.

4.8. ADD/DELETE LOCATIONS SERVICES

The County reserves the right to unilaterally add or delete locations/services, either collectively or individually, at the County's sole option, at any time after award has been made as may be deemed necessary or in the best interests of the County. In such case, the contractor(s) will be required to provide services to this agreement in accordance with the terms, conditions, and specifications.

4.9. COLLUSION

The Contractor, by affixing a signature to their response, certifies that its submittal is made without previous understanding, agreement, or connection with any person, firm or corporation making a submittal for the same item(s) and is in all respects fair, without outside control, collusion, fraud, or otherwise illegal action.

4.10. CONFLICT OF INTEREST

A. The Contractor, by affixing a signature to their response, represents that it presently has no interest and will acquire no interest, either direct or indirect, which would conflict in any manner with the performance or services required hereunder. The contractor further represents that, if it is awarded a contract under this solicitation, no person having any such interest will be employed during the contract term and any extensions. In addition, the contractor will not offer gifts or gratuities to County employees as County employees are not permitted to accept gifts or gratuities. By signing this document, the contractor acknowledges that no gifts or gratuities have been offered to County employees or anyone else involved in this competitive solicitation process.

B. The contractor will promptly notify the County's representative, in writing, by certified mail, of all potential conflicts of interest for any prospective business association, interest, or other circumstance, which may influence or appear to influence the contractor's judgment or quality of services being provided hereunder. Such written notification will identify the prospective business association, interest or circumstance, the nature of work that the contractor may undertake and request an opinion of the County as to whether the association, interest or circumstance would, in the opinion of the County, constitute a conflict of interest if entered into by the contractor. The County agrees to notify the contractor of its opinion, by certified mail, within thirty days of receipt of notification by the contractor.

C. It is essential to government procurement that the process be open, equitable and ethical. To this end, if potential unethical practices including but not limited to collusion, receipt or solicitation of gifts and conflicts of interest (direct/indirect) etc. are observed or perceived, please report such activity to:

1. Pinellas County Clerk of Circuit Court – Division of Inspector General
2. Phone – (727) 45FRAUD (453-7283)
3. Fax – 727-464-8386

4.11. MATERIAL SAFETY DATA SHEETS

In accordance with OSHA Hazardous Communications Standards, it is the Contractor seller's duty to advise if a product is a toxic substance and to provide a Material Safety Data Sheet (SDS) at time of delivery.

4.12. CONTRACTOR CAPABILITY / REFERENCES

Prior to agreement award, any contractor may be required to show that the company has the necessary facilities, equipment, ability and financial resources to perform the work specified in a satisfactory manner and within the time specified. In addition, the company must have experience in work of the same or similar nature, and can provide references, which will satisfy the County. Contractors must furnish a reference list of at least four (4) customers for whom they have performed similar services.

4.13. CONTRACTOR LICENSE REQUIREMENT

All Contractors performing construction and related work in Pinellas County must comply with our regulatory legislation, Chapter 75-489, Laws of Florida, as amended. Failure to have a competency license in a regulated trade will be cause for rejection of any submittal and/or award.

4.14. CORPORATE REGISTRATION

An award may not be issued without proof that your firm is registered with the Florida Division of Corporations, as per Florida Statute §607.1501 www.flsenate.gov/Laws/Statutes/2011/607.1501.

A foreign corporation (foreign to the State of Florida) may not transact business in this state until it obtains a certificate of authority from the Department of State. Please visit dos.myflorida.com/sunbiz/ for this information on how to become registered.

4.15. DESCRIPTION OF GOODS/SERVICES/SUPPLIES

A. Any manufacturer's names, trade names, brand name, or catalog numbers used in specifications are for the purpose of describing and establishing general quality levels. Such references are not intended to be restrictive. Submittals will be considered for all brands which meet the quality of the specifications listed for any items.

B. Contractors are required to state exactly what they intend to furnish otherwise they will be required to furnish the items as specified.

C. Contractor submission must include all data necessary to evaluate and determine the quality of the item(s) they intend to furnish.

D. **ALTERNATES:** Alternates will not be considered unless authorized by the solicitation. Such alternates may or may not be accepted by the County. If approved, it is at the County's discretion to accept said alternate(s) in any sequence or combination therein. If the contractor is proposing an alternate that is not provided in the solicitation, alternate(s) must be submitted within the OpenGov Q & A section prior to the question deadline, and receive approval prior to the solicitation opening date in order to be considered for award.

E. **OR EQUAL DETERMINATION:** Where submitting other than specified, the determination of equivalency will be at the sole discretion of Pinellas County and its specialized personnel.

4.16. E-VERIFY

The contractor and their subcontractor(s) must register with and use the E-verify system in accordance with Florida Statute 448.095. A contractor and subcontractor may not enter into a contract with the County unless each party registers with and uses the E-verify system.

If a contractor enters a contract with a subcontractor, the subcontractor must provide the contractor with an affidavit stating that the Subcontractor does not employ, contract with, or subcontract with unauthorized aliens. The contractor must maintain a copy of the affidavit for the duration of the contract.

If the County, Contractor, or Subcontractor has a good faith belief that a person or entity with which it is contracting has knowingly violated Florida Statute 448.09(1) they must immediately terminate the contract with the person or entity.

If the County has a good faith belief that a Subcontractor knowingly violated this provision, but the Contractor otherwise complied with this provision, the County will notify the Contractor and order that the Contractor immediately terminate the contract with the Subcontractor.

A contract terminated under the provisions of this section is not a breach of contract and may not be considered such. Any contract termination under the provisions of this section may be challenged to Section 448.095(2)(d), Florida Statute. Contractor acknowledges upon termination of this agreement by the County for violation of this section by Contractor, Contractor may not be awarded a public contract for at least one (1) year. Contractor acknowledges that Contractor is liable for any additional costs incurred by the County as a result of termination of any contract for a violation of this section.

Contractor or Subcontractor will insert in any subcontracts the clauses set forth in this section, requiring the subcontracts to include these clauses in any lower tier subcontracts. Contractor will be responsible for compliance by any Subcontractor or Lower Tier Subcontractor with the clause set for in this section.

4.17. EXCEPTIONS

Contractor is advised that if it wishes to take exception to any of the terms contained or referenced in this solicitation it must explicitly identify the term and the exception in its response to the solicitation. Contractor's stated exception to a non-negotiable term may disqualify it from consideration for award.

4.18. INDEMNIFICATION

A. Unless otherwise provided in the special provisions, special conditions, and specifications, Contractor assumes liability for all damage to Work under construction or completed, whether from fire, water, winds, vandalism, or other causes, until final completion and acceptance by the County and notwithstanding the fact that partial payments may have been made during construction.

B. No subcontract or transfer of Agreement shall in any case release either the Contractor or its surety of any liability under the Agreement. The County reserves the right to reject any subcontractors or equipment.

C. Unless specifically prohibited by Florida law, the Contractor shall defend, indemnify and hold harmless the County and its officers and employees from any and all liabilities, claims, damages, penalties, demands, judgments, actions, proceedings, losses or costs, including, but not limited to, reasonable attorneys' fees and paralegals' fees, or by, or on account of, any claim or amounts recovered under the "Workers' Compensation Law" or of any other laws, by-laws, ordinance, order or decree, including but not limited to any violation of requirements of the Americans with Disabilities Act of 1990, as may be amended, and all rules and regulations issued pursuant thereto (collectively the “ADA”) whether resulting from any claimed breach of this Agreement by the Contractor or from personal injury, property damage, direct or consequential damages, or economic loss, to the extent caused by the negligence, recklessness, or intentional wrongful misconduct of the Contractor or anyone employed or utilized by the Contractor in the performance of this Agreement. The duty to defend under this paragraph is independent and separate from the duty to indemnify, and the duty to defend exists regardless of any ultimate liability of the Contractor, the County and any indemnified party. The duty to defend arises immediately upon presentation of a claim by any party and written notice of such claim being provided to the Contractor. The Contractor's obligation to indemnify and defend under this Article will survive the expiration or earlier termination of this Agreement until it is determined by final judgment that an action against the County or an indemnified party for the matter indemnified hereunder is fully and finally barred by the applicable statute of limitations. The Contractor shall guarantee the payment of all just claims for materials, supplies, tools, labor or other just claims against it or any subcontractor in connection with this Agreement; and its bonds will not be released by final acceptance and payment by the County unless all such claims are paid or released.

4.19. INDEPENDENT CONTRACTOR STATUS AND COMPLIANCE WITH THE IMMIGRATION REFORM AND CONTROL ACT OF 1986

Contractor acknowledges that it is functioning as an independent contractor in performing under the terms of this agreement, and it is not acting as an employee of Pinellas County. The contractor acknowledges that it is responsible for complying with the provisions of the Immigration Reform and Control Act of 1986, located at 8 U.S.C. Section 1324, et seq., and regulations relating thereto. Failure to

comply with the above provisions of the agreement will be considered a material breach and grounds for immediate termination of the agreement.

4.20. INSURANCE

The Contractor must provide a certificate of insurance and endorsement in accordance with the insurance requirements listed in the insurance section below. Failure to provide a compliant certificate of insurance and endorsement(s) in accordance with the solicitation/contract documents within a 10-day period following the determination or recommendation of award may result in the County to vacate the original determination or recommendation and proceed with recommendation to another Contractor.

4.21. LOBBYING

All Contractors agree to adhere to Pinellas County Code Section 2-189, which states:

Lobbying shall be prohibited on all county competitive selection processes and purchasing contract awards pursuant to this division, including, but not limited to, requests for proposals, requests for quotations, requests for qualifications, bids or the award of purchasing contracts of any type. The purpose of this prohibition is to protect the integrity of the procurement process by shielding it from undue influences prior to the contract award, or the competitive selection process is otherwise concluded. However, nothing herein shall prohibit a prospective respondent/proposer/protestor from contacting the Purchasing Department or the County Attorney's Office to address situations such as clarification and/or pose questions related to the procurement process.

Lobbying of evaluation committee members, county government employees, elected/appointed officials, or advisory board members regarding requests for proposals, requests for quotations, requests for qualifications, bids, or purchasing contracts, by the respondent, any member of the respondent's staff, any agent or representative of the respondent, or any person employed by any legal entity affiliated with or representing a respondent, is strictly prohibited from the date of the advertisement, or on a date otherwise established by the Board, until either an award is final, or the competitive selection process is otherwise concluded. Any lobbying activities in violation of this section by or on behalf of a respondent/proposer shall result in the disqualification or rejection of the proposal, quotation, statement of qualification, bid or contract.

For purposes of this provision, "lobbying" shall mean influencing or attempting to influence action or non-action, and/or attempting to obtain the goodwill of persons specified herein relating to the selection, ranking, or contract award in connection with any request for proposal, request for quotation, request for qualification, bid or purchasing contract through direct or indirect oral or written communication. The final award of a purchasing contract shall be the effective date of the purchasing contract.

Any evaluation committee member, county government employee, elected/appointed official, or advisory board member who has been lobbied shall immediately report the lobbying activity to the director.

(Ord. No. 02-35, 5-7-02; Ord. No. 04-64, § 12, 9-21-04; Ord. No. 04-87, § 1, 12-7-04; Ord. No. 10-09, § 6, 2-16-10; Ord. No. 11-23, § 2, 7-26-11; Ord. No. 14-11, § 5, 2-11-14; Ord. No. 18-34, 10-23-18).

4.22. LOCAL, STATE, AND FEDERAL COMPLIANCE REQUIREMENTS

The laws of the State of Florida apply to any purchase made under this solicitation. Contractors must comply with all local, state, and federal directives, orders and laws as applicable to this solicitation and subsequent agreement(s) including but not limited to Americans with Disabilities Act (ADA), Section 504 of the Rehabilitation Act of 1973, Equal Employment Opportunity (EEO), Minority Business Enterprise (MBE), and Occupational Safety and Health Administration (OSHA) as applicable to this agreement.

4.23. NON-EXCLUSIVE CONTRACT

Award of this agreement will impose no obligation on the County to utilize the contractor for all work of this type, which may develop during the agreement period. This is not an exclusive agreement. The County specifically reserves the right to concurrently contract with other companies for similar work if it deems such action to be in the County's best interest. In the case of multiple-term agreements, this provision will apply separately to each term.

4.24. PROCUREMENT POLICY FOR RECYCLED MATERIALS

A. Pinellas County wishes to encourage its contractors to use recycled products in fulfilling contractual obligations to the County and that such a policy will serve as a model for other public entities and private sector companies.

B. When awarding a purchase or recommending a purchase for products, materials, or services, the Director of Purchasing and Risk Management may allow a preference to a responsive contractor who certifies that their product or material contains the greatest percentage of postconsumer material. If solicitation includes paper products, contractor must certify that their materials and/or products contain at least the content recommended by the Environmental Protection Agency (EPA) guidelines.

C. On all quotes, or as required by law, the Director of Purchasing and Risk Management require Contractors to specify which products have recycled materials, what percentage or amount is postconsumer material, and to provide certification of the percentages of recycled materials used in the manufacture of goods and commodities procured by the County.

D. Price preference is not the preferred practice the County wishes to employ in meeting the goals of this resolution. If a price preference is deemed to serve the best interest of the County and further supports the purchase of recycled materials, the Director of Purchasing will make a recommendation that a price preference be allowed up to an amount not to exceed 10% above the lowest complying submittal received.

Definitions for Recycled Materials:

Recovered Materials: Materials that have recycling potential, can be recycled, and have been diverted or removed from the solid waste stream for sale, use or reuse, by separation, collection, or processing.

Recycled Materials: Materials that contain recovered materials. This term may include internally generated scrap that is commonly used in industrial or manufacturing processes, waste or scrap purchased from another manufacturer and used in the same or a closely related product.

Postconsumer Materials: Materials which have been used by a business or a consumer and have served their intended end use, and have been separated or diverted from the solid waste stream for the purpose of recycling, such as; newspaper, aluminum, glass containers, plastic containers, office paper, corrugated boxes, pallets or other items which can be used in the remanufacturing process.

4.25. PROVISION FOR OTHER AGENCIES

Unless otherwise stipulated, the Contractor(s) agree to make available to all "Eligible Users" the prices submitted in accordance with the terms and conditions of the contract resulting from this solicitation. Eligible Users means all State of Florida government agencies, the legislative and judicial branches, and political subdivisions (counties, local district school boards, community colleges, municipalities, or other public agencies or authorities), which may desire to purchase under the terms and conditions of the resulting contract.

4.26. PUBLIC EMERGENCIES

It is hereby made a part of this solicitation that before, during, and after a public emergency, disaster, hurricane, tornado, flood, or other acts of God that Pinellas County will require a first priority for goods and services. It is vital and imperative that the majority of citizens are protected from any emergency situation that threatens public health and safety, as determined by the County. contractor agrees to rent/sell/lease all goods and services to the County or governmental entities on a first priority basis. The County expects to pay a fair and reasonable price for all products and services rendered or contracted in the event of a disaster, emergency, hurricane, tornado or other acts of God.

4.27. PUBLIC ENTITY CRIMES STATEMENT

Contractor is directed to the Florida Public Entity Crime Act, Fla. Stat. 287.133, and Fla. Stat. 287.135 regarding Scrutinized Companies, and contractor agrees that its submittal and, if awarded, its performance of the agreement will comply with all applicable laws including those referenced herein. contractor represents and certifies that contractor is and will at all times remain eligible to submit for and perform the services subject to the requirements of these, and other applicable, laws. contractor agrees that any agreement awarded to contractor will be subject to termination by the County if contractor fails to comply or to maintain such compliance.

4.28. PUBLIC RECORDS/TRADE SECRETS

Pinellas County Government is subject to the Florida Public Records law (Chapter 119, Florida Statutes), and all documents, materials, and data submitted to any solicitation as part of the response are governed by the disclosure, exemption and confidentiality provisions relating to public records in Florida

Statutes. Except for materials that are “trade secrets” or “confidential” as defined by applicable Florida law, ownership of all documents, materials, and data submitted in response to the solicitation will belong exclusively to the County.

To the extent that contractor desires to maintain the confidentiality of materials that constitute trade secrets pursuant to Florida law, trade secret material submitted must be identified by some distinct method that the materials that constitute a trade secret, and contractor will provide an additional copy of the contractor’s submittal that redacts all designated trade secrets. By submitting materials that are designated as trade secrets and signature of the contractor signature page, contractor acknowledges and agrees:

A. That after notice from the County that a public records request has been made for the materials designated as a trade secret, the contractor will be solely responsible for defending its determination that submitted material is a trade secret that is not subject to disclosure at its sole cost, which action will be taken immediately, but no later than ten (10) calendar days from the date of notification or contractor will be deemed to have waived the trade secret designation of the materials;

B. That to the extent that the contractor with trade secret materials is evaluated, the County and it officials, employees, agents, and representatives in any way involved in processing, evaluating, negotiating agreement terms, approving any agreement based on the contractor, or engaging in any other activity relating to the competitive selection process are hereby granted full rights to access, view, consider, and discuss the materials designated as trade secrets through the final agreement award;

C. To indemnify and hold the County, and its officials, employees, agents and representatives harmless from any actions, damages (including attorney’s fees and costs), or claims arising from or related to the designation of trade secrets by the contractor, including actions or claims arising from the County’s non-disclosure of the trade secret materials.

D. That information and data it manages as part of the services may be public record in accordance with Chapter 119, Florida Statutes and Pinellas County public record policies. contractor agrees prior to providing goods/services it will implement policies and procedures to maintain, produce, secure and retain public records in accordance with applicable laws, regulations, and County policies, which are subject to approval by the County, including but limited to the Section 119.0701, Florida Statutes.

Notwithstanding any other provision in the solicitation, the classification as trade secret of the entire submission document, line item and/or total contractor prices, the work, services, project, goods, and/or products to be provided by contractor, or any information, data, or materials that may be part of or incorporated into an agreement between the County and the contractor is not acceptable to the County and will result in a determination that the contractor submittal is nonresponsive; the classification as trade secret of any other portion of a submittal document may result in a determination that the submittal is nonresponsive.

4.29. TRUTH IN NEGOTIATIONS

The contractor certifies to truth-in-negotiation and that wage rates and other factual unit costs supporting the compensation are accurate, complete and current at the time of contracting. Further, the original agreement amount and any additions thereto will be adjusted to exclude any significant sums where the County determines the agreement price was increased due to inaccurate, incomplete or non-current wage rates and other factual unit costs. Such adjustments must be made within one (1) year following the end of the agreement.

4.30. VARIANCE FROM STANDARD TERMS & CONDITIONS

All standard terms and conditions stated in this section apply to this Agreement except as specifically stated in the subsequent sections of the document, which take precedence over this section, and should be fully understood by contractors prior to submitting on this requirement.

4.31. PAYMENT/INVOICES

The Contractor shall submit an Application and Certification for Payment (Pay Applications) for payment as provided herein with such documentation as required by Pinellas County. All payments shall be made in accordance with the requirements of Section 218.70 et seq, Florida Statutes, "The Local Government Prompt Payment Act."

The County may dispute any payments invoiced by the contractor in accordance with the County's Dispute Resolution Process for Invoiced Payments, established in accordance with Section 218.76, Florida Statutes, and any such disputes shall be resolved in accordance with the County's Dispute Resolution Process.

The Contractor must submit a draft Pay Application and required documentation to the Pinellas County Project Manager for review. The Project Manager reviews the draft and may request changes. Approved draft Pay Applications are signed by the Project Manager and returned to the Contractor.

The Contractor is responsible for submitting the final Pay Application to the County.

All Pay Applications must be e-mailed to:

ClerkConstructionAP@MyPinellasClerk.gov

Clerk of the Circuit Court and Comptroller

Attn: Finance Division, Accounts Payable

The following are required forms for Pay Application submittals:

A. Application and Certification for Payment

B. Schedule of Values

Documentation must be attached and submitted as a PDF. External link redirects to download a copy of a Pay Application are unauthorized and will not be accepted.

All signatures must be original or certified.

To be considered a proper Pay Application, the following criteria must be included:

A. To (Owner):
    1. Board of County Commissioners (Board)
B. Project Information:
    1. Contract Agreement Number
    2. Project ID (PID)

A.

C. Contractor information:
    1. Legal name
    2. Remit to name and address
    3. Contact details, including email and phone number

A.

D. Pay Application Number numbering and naming:
    1. Application number must be sequential
    2. Duplicate pay applications will not be accepted
    3. “Application and Certification for Payment” must be on the face of the document

A.

E. Purchase Order information:
    1. Valid purchase order number
    2. All goods and services billed must be completed
    3. Pay Applications must not exceed the amount of the current authorized purchase order

F. Dates:

1. Period From/Period To (service period)
2. Contractor signature date
3. Project Manager signature date

G. Contract Spending Request Financial Summary:

1. Original Contract SUM
2. New change by change order
3. Contract SUM to date
4. Total Completed and Stored to Date
5. Retainage
6. Total earned less Retainage
7. Less Previous Certificates for Payment
8. Current Payment Due
9. Balance to Finish, plus retainage

H. Signatures:

1. Contractor Signature
2. Project Manager Signature
3. Pay Applications will not be accepted without a proper signature

I. Required Supporting Documentation:

1. Accepted Schedule of Values
2. Projects including stored materials and alternative work authorizations will be accepted on the following forms:

    a. Stored Materials
    b. Alternative Work Authorization

CONTRACTOR must submit a General Contractor Release Affidavit at the end of the project.

Upon execution of the agreement, CONTRACTOR will complete and notarize the onboarding packet provided by COUNTY, which includes W-9 tax reporting information.

4.32. TAXES

a. The County is exempt from all state and federal sales, use, transportation and excise taxes. The Laws of the State of Florida provide that sales and use taxes are payable by the contractor upon the tangible personal property incorporated in the work and such taxes shall be paid by the contractor and be deemed to have been included in the solicitation.

b. Payments to Pinellas County are subject to applicable Florida taxes.

4.33. DELIVERY/CLAIMS

Prices quoted shall be FOB Destination, freight included and unloaded to location(s) within Pinellas County. Actual delivery address(s) shall be identified at time of order. Successful contractor(s) will be responsible for making any and all claims against carriers for missing or damaged items.

4.34. MATERIAL QUALITY

All materials purchased and delivered against this Agreement will be of first quality and not damaged and/or factory seconds. Any materials damaged or not in first quality condition upon receipt will be exchanged within twenty-four (24) hours of notice to the contractor at no charge to the County.

4.35. ASSIGNMENT/SUBCONTRACTING/CORPORATE ACQUISITIONS AND/OR MERGERS

The contractor shall perform this agreement. If a contractor intends to subcontract a portion of this work, the contractor must disclose that intent in the solicitation. No assignment or subcontracting shall be allowed without prior written consent of the County. In the event of a corporate acquisition and/or merger, the contractor shall provide written notice to the County within thirty (30) business days of contractor's notice of such action or upon the occurrence of said action, whichever occurs first. The right to terminate this agreement, which shall not be unreasonably exercised by the County, shall include, but not be limited to, instances in which a corporate acquisition and/or merger represent a conflict of interest or are contrary to any local, state, or federal laws. Action by the County awarding an agreement to a contractor, which has disclosed its intent to assign or subcontract in its response to the solicitation, without exception shall constitute approval for purposes of this agreement. The contractor must inform the County in writing within forty-five (45) business days if the contractor's business entity's name changes. The contractor will bear all responsibility and waive any rights it may have to relief for any delay in processing a payment associated with the County's inability to issue payment to the contractor for a business entity name change that the County was not made aware of as reflected herein.

4.36. LUMBER PRODUCED IN STATE OF FLORIDA

Per Florida Statute 255.20, lumber, timber and other forest products utilized in this contract must be produced and manufactured in Florida, if wood is a component of the project, and if such products are available and their price fitness and quality are equal.

The following does not apply:

To plywood specified for monolithic concrete forms.

If the structural or service requirements for timber for a particular job cannot be supplied by native species.

If the construction is financed in whole or in part from federal funds with the requirement that there be no restrictions as to species or place of manufacture.

To transportation projects for which federal aid funds are available.

4.37. ASBESTOS MATERIALS

The contractor shall perform all Work in compliance with Federal, State and local laws, statutes, rules, regulations and ordinances, including but not limited to the Department of Environmental Protection (DEP)'s asbestos requirements, 40 CFR Part 61, Subpart M, and OSHA Section 29 CFR 1926.58. Additionally, the contractor shall be properly licensed and/or certified for asbestos removal as required under Federal, State and local laws, statutes, rules, regulations and ordinances.

The County shall be responsible for filing all DEP notifications and furnish a copy of the DEP notification and approval for demolition to the successful contractor. The County will furnish a copy of the asbestos survey to the successful contractor. The contractor must keep this copy on site at all times during the actual demolition.

4.38. DISPUTE RESOLUTION FOR PINELLAS COUNTY BOARD OF COUNTY COMMISSIONERS IN MATTERS OF INVOICE PAYMENTS

Payment of invoices for work performed for Pinellas COUNTY Board of COUNTY Commissioners (COUNTY) is made, by standard, in arrears in accordance with Section 218.70, et. seq., Florida Statutes, the Local Government Prompt Payment Act.

If a dispute should arise as a result of non. payment of a payment request or invoice the following Dispute Resolution process will apply:

1. Pinellas COUNTY will notify a vendor in writing within 10 days of receipt of an improper invoice. The notice will indicate what steps the vendor should undertake to correct the invoice and resubmit a proper invoice to the COUNTY. Such steps should include requiring the vendor to contact the requesting department to validate the invoice and receive a sign off from that entity that would indicate that the invoice in question is in compliance with the terms and conditions of the Agreement, and then resubmitting the invoice as a “Corrected Invoice” to the requesting department to initiate the payment timeline.
    a. Requesting department for this purpose is defined as the COUNTY department for which the work is performed or to which goods are provided.
    b. Proper invoice for this purpose is defined as an invoice submitted for work performed that meets prior agreed upon terms or conditions to the satisfaction of Pinellas COUNTY.
2. Should a dispute result between the vendor and the COUNTY about payment of a payment request or an invoice then the vendor should submit their dissatisfaction in writing to the

Requesting Department. Each Requesting Department will assign a representative who will act as a "Dispute Manager" to resolve the issue at departmental level.

3. The Dispute Manager will first initiate procedures to investigate the dispute and document the steps taken to resolve the issue in accordance with section 218.76 Florida Statutes. Such procedures must be commenced no later than 30 days after the date on which the payment request or invoice was received by Pinellas COUNTY and will not extend beyond 45 days after the date on which the payment request or invoice was received by Pinellas COUNTY.

4. The Dispute Manager should investigate and ascertain that the work, for which the payment request or invoice has been submitted, was performed to Pinellas COUNTY's satisfaction and duly accepted by the Proper Authority. Proper Authority for this purpose is defined as the Pinellas COUNTY representative who is designated as the approving authority for the work performed in the contractual document. The Dispute Manager will perform the required investigation and arrive at a solution before or at the 45-day timeframe for resolution of the dispute, per section 218.76, Florida Statutes. The COUNTY Administrator or his or her designee will be the final arbiter in resolving the issue before it becomes a legal matter. The COUNTY Administrator or his or her designee will issue their decision in writing.

5. Pinellas COUNTY Dispute Resolution Procedures will not be subject to Chapter 120 of the Florida Statutes. The procedures will also, per section 218.76, Florida Statutes, not be intended as an administrative proceeding which would prohibit a court from ruling again on any action resulting from the dispute.

6. Should the dispute be resolved in the COUNTY's favor interest charges begin to accrue 15 days after the final decision made by the COUNTY. Should the dispute be resolved in the vendor's favor the COUNTY will pay interest as of the original date the payment was due.

7. For any legal action to recover any fees due because of the application of sections 218.70 et. seq., Florida Statutes, an award will be made to cover court costs and reasonable attorney fees, including those fees incurred as a result of an appeal, to the prevailing party If it is found that the non. prevailing party held back any payment that was the reason for the dispute without having any reasonable lawful basis or fact to dispute the prevailing party's claim to those amounts.

5. Special Conditions

5.1. SMALL BUSINESS ENTERPRISE (SBE) PARTICIPATION REQUIREMENTS

A. It is the policy of the Board of County Commissioners (Board) that SBE qualified firms have the maximum opportunity to participate on County projects. In this regard, the contractor to whom any award of this solicitation is made shall take all necessary and reasonable steps to ensure that SBE qualified firms have the maximum opportunity to participate in this contract. Failure of the bidder to comply with SBE pre-award requirements may result in rejection of the bid. Failure of the contractor to perform contractual requirements of the SBE requirements pertaining to this contract may constitute a material breach of the contract and may result in contract termination

B. This section outlines the requirements for Small Business Enterprise (SBE) participation as outlined in Purchasing Procedures Section 14. An SBE is defined as a local business that is independently owned and which is not dominant in its field of operation. The Small Business must also comply with the following:

1. The business must serve a commercially useful function.
2. The business must be located in Pinellas, Hillsborough, Pasco, or Manatee Counties.
3. The company's total annual sales do not exceed the maximum 3-year average gross revenue of three 3 million dollars for businesses providing services or gross revenues not exceeding (8) million for construction service providers.
4. The number of employees of the company does not exceed the maximum 3-year average of 50 employees.

C. Information pertaining to SBE registration may be found at the Economic Development website: www.pced.org/page/sbe.

D. The Board has established an overall annual goal for the participation of SBE qualified firms in all construction contract awards of $100,000 or more. As subcontract awards by the successful bidder on this solicitation to SBE qualified firms are essential to the achievement of the Board's SBE goals, this specification includes requirements with which bidders must comply. Bidders must meet the goal as set forth below for participation of SBE qualified firms.

E. In connection with this solicitation and resulting contract, a goal of **(3%)** has been established for participation by SBE firms as subcontractors. The goal shall be applied to the full monetary value of the contract and shall be reflected in the monetary portion spent on subcontractors for consulting or construction services to be awarded to those SBE qualified firms meeting contract specifications.

F. Provisional reciprocity shall be granted to SBE firms that are principally domiciled in Pinellas, Pasco, Hillsborough, and Manatee Counties and have registered through that agency or

municipality. SBE firms qualified by the State of Florida and located in the counties listed above will also be granted reciprocity.

G. In order to be considered for provisional certification and be counted toward the goal attainment, the contractor or subcontractor must be registered with the Pinellas County Department of Economic Development website www.pced.org/page/sbe.

H. The Subcontractors/Material Suppliers List (List) must be completed and submitted with your bid submittal. Refer to Appendix 7, SBE Compliance Form. The List must include the suppliers name, scope or type of work to be performed and dollar amount. The identification of all SBE firms to be utilized on the project must be shown on this List. This List is the basis for determining whether the bidder met the SBE goal attainment.

5.2. TWO-STEP QUALIFICATION PROCESS

This Invitation to Bid requires a Two-step process. All interested bidders must complete Step One: Qualification Submittal Forms (Part A & Part B). Awards of bids for construction services with an engineering estimate in excess of $100,000 will only be made to:

- Bidders who have pre-qualified with the Florida Department of Transportation (FDOT) must be prequalified in all of the following work types of NOT APPLICABLE, in the amount that equals or exceeds their bid attach FDOT qualification letter/forms & complete Part A & B,
- Bidders who have no FDOT prequalification letter/forms complete Part B.

Only those bids from Bidders that fully complete Step One prior to bid opening will be considered. Qualified bidders will be notified individually in OpenGov. Step Two submittal is due by Step Two due date and time in OpenGov.

5.3. PRICING/PERIOD OF CONTRACT

Unit prices bid of listed items shall be held firm from the date the contract is signed by the Contractor until the project is completed and accepted by the Board of County Commissioners. Unless otherwise approved by the County, the Contractor shall commence Work under this Agreement with an adequate force and equipment within 15 consecutive calendar days after receipt of written notice from the County to proceed and to fully complete all necessary Work under the same within not more than 365 consecutive calendar days.

5.4. MANDATORY PRE-BID CONFERENCE:

All questions pertaining to the bid or technical specifications will be reviewed at this time. Bid suggestions or modifications may be discussed with County representatives at this meeting and may be considered by representatives as possible addenda to the Invitation to Bid. Due to the scope of this project, bids received from bidders who did not attend the "Mandatory" pre-bid conference will be judged non-responsive and will not be considered for award.

11400 Belcher RD, Largo, FL 33777 See the Agenda for the parking location.

Thursday, February 26, 2026

10:00 am

5.5. MANDATORY SITE VISIT:

The sole purpose of the site visit is to provide a tour of the site(s) that will be supported by the contract. The scope of work and/or bid specifications shall not be discussed during this visit. All questions relating to this bid and the scope of work or technical specifications must be submitted in writing. Due to the scope of this Project, a mandatory site visit will be required. Bids received from bidders who do not attend a mandatory site visit will be judged non-responsive and will not be considered for award.

There will be a Site Visit at the following date, time, and location:

11400 Belcher RD, Largo, FL 33777

2/26/2026

10:00 AM

5.6. PRE-COMMENCEMENT MEETING

Upon award of bid, the County will coordinate a pre-commencement meeting with the successful Contractor. The meeting will require Contractor and the County Representative(s) to review specific contract details and deliverable documents at this meeting to ensure the project documents and work areas are understood.

5.7. BID BOND GUARANTEE

A. All bids must be accompanied by a Bid Bond guarantee in the sum of 5% of the base bid and made payable to Pinellas County. Said bid bond shall be a guarantee that should the bid be accepted, the bidder will, within (10) days after the acceptance of its bid, enter into an agreement with Pinellas County for the services proposed to be performed and will at that time furnish an acceptable agreement surety. Cash, certified check, cashier's check, trust company treasurer check, company or personal checks and bank draft of any national or state bank are not acceptable.

B. Said bid bond and the monies payable thereon, will, at the option of the County, be forfeited if the bidder fails to execute the written agreement and furnish the required surety bond within 10 consecutive calendar days following written notice of the award of the contract.

C. Attorneys-in-fact who sign bonds must file with such bond one (1) certified copy of their power of attorney to sign said bond.

D. Bid bond shall have been issued within 30 days of the date for receiving bids.

5.8. CONTRACT SECURITY

A. The bidder shall provide a performance bond and a payment bond in the form prescribed in this solicitation, and each in the amount of 100% of the agreement amount, the costs of which are

to be paid by the bidder. The bonds will be acceptable to the County only if the following conditions are met:

1. For contracts that do not exceed $500,000.00, the Surety Company:
    a. is licensed to do business in the State of Florida;
    b. holds a certificate of authority authorizing it to write surety bonds in this state and provides proof of same;
    c. has twice the minimum surplus and capital required by the Florida insurance code at the time the invitation to bid is issued;
    d. is otherwise in compliance with the provisions of the Florida insurance code; and
    e. holds a currently valid certificate of authority issued by the United States Department of Treasury under 31 U.S.C. ss 9304-9308.
2. For contracts over $500,000.00, all of the requirements of paragraph A.1 above apply. In addition, the surety company must have a current rating of at least Excellent (A or A-) all as reported in the most current Best Key Rating Guide, published by A.M. Best Company, Inc., of 75 Fulton Street, New York, New York 10038, with an underwriting limitation of at least two times the dollar amount of the agreement.
3. All bonds must be signed by an insurance agent who is licensed to do business in the state of Florida. The license may be held by a resident agent or a non-resident agent.

B. If the Surety for any Bond furnished by the Bidder is declared bankrupt, becomes insolvent, its right to do business is terminated in the State of Florida, or it ceases to meet the requirements imposed by the Contract Documents, the Bidder shall, within 5 calendar days thereafter, substitute another Bond and Surety, both of which shall be subject to the County's approval.

C. By execution of these bonds, the Surety acknowledges that it has read the Surety qualifications and Surety obligations imposed by the Contract Documents and hereby satisfies those conditions.

5.9. LICENSES, PERMITS, FEES AND TAXES

A. Pursuant to section 218.80, Florida Statutes, Pinellas County discloses to the contractor the following permits and fees generally which will have to be obtained by and will be payable by the contractor who is the successful bidder or proposer. Specific permits required will be shown in Appendix 1 – Permits. Contractor will be reimbursed for the actual amount paid for the permits as evidenced by official receipts from the office(s) collecting the fees. No reimbursement will be provided for license fees. Permits/fees may include the following:

1. Impact Fees.
2. Inspection Fees.

3. Other permits or fees required by Pinellas County for the completion of the work, if applicable.

4. License fees: The Pinellas County Construction Licensing Board (PCCLB), an independent government agency, may require licensure or registration of a State of Florida construction license. These are not Pinellas County Government fees, but the contractor is hereby put on notice that fees may be required by the PCCLB. License fees are not reimbursable.The foregoing list of fees apply only to those fees imposed by Pinellas County or imposed by another governmental agency which has assigned or delegated the responsibility for issuance of permits, licenses and conduction of inspections and attendant collection of fees to Pinellas County. The contractor is responsible for determining if other fees and permits are required by any other Federal, State, or local governmental entity, agency, or board.

B. All sales, consumer, use, and other similar taxes associated with the Work or portions thereof, which are applicable during the performance of the work, shall be paid by the contractor.

C. Compliance with permit and licenses requirements: The contractor shall comply with all applicable Local, State and Federal permit conditions and license requirements, applicable building and construction code requirements and such other rules and regulations as may apply to the prosecution of Work. Failure of the contractor to comply with the above-specified requirements shall result in contractor being prohibited from performing work pursuant to this agreement. Any additional costs incurred by the contractor as a result of non-compliance shall be the responsibility of the contractor and shall not be paid by the County. Additionally, contractor shall be required to pay any fines due as a result of non-compliance with the applicable requirements.

5.10. COMPLIANCE WITH LAWS

The contractor agrees to comply, at its own expense, with all Federal, State and Local laws, codes, statutes, ordinances, rules, regulations and requirements applicable to the Project or Job Order Contract, including but not limited to, those dealing with taxation, workers' compensation, equal employment, safety (including, but not limited to, the Trench Safety Act, Chapter 553.60-553.64, Florida Statutes), labor, work hours, labor conditions, environment, and related matters. If the contractor observes that the contract documents are at variance therewith, it shall promptly notify the Design Professional/Engineer/Project Manager in writing.

5.11. QUANTITIES

A. Quantities shown on the Bid Submittal Form are estimated for bidding purposes only and shall be verified by the contractor before placing orders for material. No payment shall be allowed for excess materials.

B. Payment for work performed under this agreement shall be based on the pay items and bid quantities shown on the Bid Submittal Form, subject to such extension of pay quantities as may be required.

C. Regardless of uncertainties of material supply and production at the time of bidding, bidders shall base their bids in strict accordance with items, materials and methods as set forth in the contract documents.

D. Pay items that are required to complete the scope of the Work, as defined by the project plans and specifications may be added to the list of pay items by the design professional/engineer/project manager at a later date through a change order process.

5.12. QUANTITIES REFLECTED IN PERMITTING DOCUMENTS

Any construction items or quantities reflected in the permitting documents, if any, required for this project are provided only for the purpose of enabling permitting authorities to assess the probable impact of the project on environmental concerns, and are in no way intended to reflect or represent actual construction items or quantities for pay purposes.

5.13. AWARD OF CONTRACT

The contract will be awarded for the entire Work (with or without optional/alternates items) to the lowest responsible and responsive bidder, provided that the bid is reasonable, and that it is in the best interest of the County to accept.

5.14. AFTER NOTICE OF AWARD TO CONTRACTOR

Subsequent communications between the County and the contractor shall be delivered to the County's representative. A Preconstruction Conference will be held following execution of the contract documents and prior to the Notice to Proceed.

5.15. INTENT OF THE CONTRACT DOCUMENTS

A. It is the intent of the contract documents to describe a functionally complete project (or portion thereof) to be constructed in accordance with the contract documents which combine to define the scope of work. Any work, materials or equipment that may reasonably be inferred from the contract documents as being required to produce the intended result shall be supplied whether or not specifically called for. When words which have a well-known technical or trade meaning are used to describe work, materials or equipment, such words shall be interpreted in accordance with that meaning. Reference to standard specifications, manuals or codes of any technical society, organization or association or to the laws or regulations of any governmental authority having jurisdiction over the project, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code, law or regulation in effect at the time the work is performed, except as may be otherwise specifically stated herein.

B. The contract documents and all referenced standards cited therein are essential parts of the agreement requirements. A requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete project.

C. Plans are intended to show general arrangements, design and extent of work. Specifications are separated into divisions for convenience of reference only and shall not be interpreted as

establishing divisions for the work, trades, subcontracts, or extent of any part of the work. In the event of a discrepancy between or among the plans, specifications or other contract document provisions, the contractor shall be required to comply with the provision which is the more restrictive or stringent requirement upon the contractor, as determined by the Design professional/engineer/project manager. Unless otherwise specifically mentioned, all anchors, bolts, screws, fittings, fillers, hardware, accessories, trim and other parts required in connection with any portion of the work to make a complete, serviceable, finished and first quality installation shall be furnished and installed as part of the work, whether or not called for by the contract documents.

5.16. STORAGE OF MATERIALS

Materials shall be so placed so as to permit easy access for proper inspection and identification of each shipment. Any material which has deteriorated, become damaged, or is otherwise unfit for use, as determined by the Design Professional/Engineer/Project Manager, shall not be used in the Work, and shall be removed from the site by the Contractor at its expense.

5.17. SANITATION

The Contractor shall provide and maintain adequate sanitary conveniences for the use of persons employed on the Work. These conveniences shall be maintained at all times without nuisance, and their use shall be strictly enforced. The location of these conveniences shall be subject to the Design Professional/Engineer/Project Manager's approval.

5.18. ERRORS AND OMISSIONS

The Contractor shall not take advantage of any apparent error or omission in the Contract Documents. If any errors and/or omissions appear in the Contract Documents, or construction stakeout, the Contractor shall immediately notify the Purchasing Department, in writing, of such errors and/or omissions. In the event the Contractor knows or should have known of any errors and/or omissions and fails to provide such notification, it shall be deemed to have waived any claim for increased time or compensation it may have had and he shall be held responsible for the results and the costs of rectifying any such errors and/or omissions.

5.19. CONTRACTORS AND SUBCONTRACTORS

A. Qualification

1. The Contractor shall assure that all personnel are competent, careful and reliable. All personnel must have sufficient skill and experience to properly perform the Work assigned them. All personnel shall have had sufficient experience to perform their assigned task properly and satisfactorily and to operate any equipment involved, and shall make due and proper effort to execute the Work in the manner prescribed in the Contract Documents, or the Design Professional/Engineer/Project Manager may take action as prescribed below.

2. Whenever the Design Professional/Engineer/Project Manager shall determine that any person is incompetent, unfaithful, intemperate, disorderly or insubordinate, such person

shall upon notice, be discharged from the Work and shall not again be employed on it except with the written consent of the Design Professional/Engineer/Project Manager. Should the Contractor fail to remove such person or persons the Design Professional/Engineer/Project Manager may withhold all estimates which are or may become due, or may suspend the Work until such orders are complied with.

B. Identification

1. Within 10 days after, the award of any subcontract, either by himself or a subcontractor, the Contractor shall deliver to the Design Professional/Engineer/Project Manager a statement setting forth the name and address of the subcontractor(s) and a summary description of the Work subcontracted. The Design Professional/Engineer/Project Manager shall be notified if there are any changes whatsoever to the subcontractors listed in the Proposal

2. The Contractor shall be as fully responsible to the County for acts and omissions the subcontractor and of persons either directly or indirectly employed by the subcontractor, as the Contractor is for the acts and omissions of persons directly employed by the Contractor.

5.20. AUTHORITY OF THE DESIGN PROFESSIONAL/ENGINEER/PROJECT MANAGER AND DESIGN PROFESSIONAL/ENGINEER/PROJECT MANAGER'S DESIGNEES/REPRESENTATIVES

A. All Work shall be done in accordance with the Contract Documents.

B. It is agreed by the parties hereto that the Design Professional/Engineer/Project Manager shall decide all questions, difficulties and disputes, of whatever nature, which may arise relative to the interpretation of the Plans, construction, prosecution and fulfillment of the Agreement, and as to the character, quality, amount and value of any Work done, and materials furnished, under or by reason of the Agreement.

C. The County retains the right to inspect all Work to verify compliance with the Contract Documents. The Design Professional/Engineer/Project Manager may appoint such designees and/or representatives as desired. They shall be authorized to inspect all Work done and all materials furnished. This right of inspection in no way means or implies County control or other supervision over the Work done or the work site. This right is solely for the County's benefit and imposes no duties or responsibilities on the County and confers no rights on any other parties. Such inspection may extend to all or any part of the Work and to the manufacture, preparation or fabrication of the materials to be used. Such designees and/or representatives shall not be authorized to revoke, alter or waive any requirement of the Contract Documents.

D. The designees and/or representatives shall be authorized to call to the attention of the Contractor any failure of the Work or materials to conform to the Contract Documents, and shall have the authority to reject materials or suspend the Work until any questions at issue can be referred to and decided by the Design Professional/Engineer/Project Manager. The Contractor

shall be immediately notified in writing of any such suspension of the Work and such notice shall state in detail the reasons for the suspension. The presence of the inspector or other designee shall in no way lessen the responsibility of the Contractor.

E. Contractor's Supervision

1. Prosecution of Work: The Contractor shall give the Work the constant attention necessary to assure the scheduled progress and it shall cooperate fully with the Design Professional/Engineer/Project Manager and with other Contractors at Work in the vicinity.

2. Contractor's Superintendent:

   a. The Contractor shall at all times have on the Work as his agent, a competent superintendent capable of thoroughly interpreting the plans and specifications and thoroughly experienced in the type of Work being performed, who shall receive the instructions from the Design Professional/Engineer/Project Manager or his/her authorized representatives. The superintendent shall have full authority to execute the orders or directions of the Design Professional/Engineer/Project Manager and to supply promptly any materials, tools, equipment, labor and incidentals which may be required. Such superintendence shall be furnished regardless of the amount of Work sublet.

   b. The Contractor's superintendent shall speak and understand English, and at least one responsible person who speaks and understands English shall be on the Project during all working hours.

   c. The Contractor’s Superintendent and agent are synonymous with regards to this section and shall be an employee or contract employee of the prime contractor. A sub-contractor shall not serve as an agent for the prime contractor.

3. Supervision for Emergencies: The Contractor shall have a responsible person available at or reasonably near the work site on a 24 hour basis, 7 days a week, in order that he/she may be contacted in emergencies and in cases where immediate action must be taken to maintain traffic or to handle any other problem that might arise. The Contractor's responsible person for supervision for emergencies shall speak and understand English. The Contractor shall submit, by certified mail, phone numbers and names of personnel designated to be contacted in cases of emergencies along with a description of the Project location to the Florida Highway Patrol and all other local law enforcement agencies.

4. Worksite Traffic Supervisor: (When the work involves road construction/reconstruction or changes affect normal traffic patterns)

   a. The Contractor shall have a Worksite Traffic Supervisor who will be responsible for initiating, installing and maintaining all traffic control devices as described in Section 102 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, and in the plans. The Worksite Traffic Supervisor shall have at least one

year of experience directly related to worksite traffic control in a supervisory or responsible capacity and shall be certified by the American Traffic Safety Services Association Worksite Traffic Supervisor Certification Program or an equal approved by the Florida Department of Transportation. Approved alternate Worksite Traffic Supervisors may be used when necessary.

b. The Worksite Traffic Supervisor shall be available on a 24 hour per day basis and shall review the Project on a day to day basis as well as being involved in all changes to traffic control. The Worksite Traffic Supervisor shall have access to all equipment and materials needed to maintain traffic control and handle traffic related situations. The Worksite Traffic Supervisor shall ensure that routine deficiencies are corrected within a 24-hour period.

c. The Worksite Traffic Supervisor shall be available on the site within 45 minutes after notification of an emergency situation, prepared to positively respond to repair the Work zone traffic control or to provide alternate traffic arrangements.

d. Failure of the Worksite Traffic Supervisor to comply with the provisions of the Sub-article may be grounds for decertification or removal from the Project or both. Failure to maintain a designated Worksite Traffic Supervisor or failure to comply with these provisions will result in temporary suspension of all activities except traffic and erosion control and such other activities deemed to be necessary for Project maintenance.

F. General Inspection Requirements

1. Cooperation by the Contractor: No Work shall be done nor materials used, without suitable supervision or inspection by the Design Professional/Engineer/Project Manager or his/her representative, and the Contractor shall furnish the Design Professional/Engineer/Project Manager with every reasonable facility for ascertaining whether the Work performed and materials used are in accordance with the requirements and intent of the Plans and Specifications. If the Design Professional/Engineer/Project Manager so requests, the Contractor shall, at any time before final acceptance of the Work, remove or uncover such portions of the finished Work as may be directed. After examination, the Contractor shall restore the uncovered portions of the Work to the standard required by the Specifications. Should the Work so exposed or examined prove unacceptable, the uncover or removal, and the replacing of the covering or making good of the parts removed, shall be at the Contractor's expense. However, should the Work thus exposed or examined prove acceptable, the uncovering or removing, and the replacing of the covering or making good of the parts removed, shall be paid for as Unforeseeable Work.

2. Failure of the Design Professional/Engineer/Project Manager to Reject Work During Construction: If, during or prior to construction operations, the Design Professional/Engineer/Project Manager should fail to reject defective Work or materials,

whether from lack of discovery of such defect or for any other reason, such initial failure to reject shall in no way prevent his/her later rejection when such defect is discovered, or obligate the County to final acceptance, and the Contractor shall make no claim for losses suffered due to any necessary removals or repairs of such defects.

3. Failure to Remove and Renew Defective Materials and Work:

    a. Should the Contractor fail or refuse to remove and renew any defective materials used or Work performed, or to make any necessary corrections in an acceptable manner and in accordance with the requirements of the specifications, within the time indicated in writing, the Design Professional/Engineer/Project Manager shall have the authority to cause the unacceptable or defective materials or Work to be repaired, removed and renewed, as may be necessary; all at the Contractor's expense.

    b. Any expense incurred by the County in making these repairs, removals, or renewals, which the Contractor has failed or refused to make, shall be paid for out of any moneys due or which may become due the Contractor, or may be charged against the Performance Bond. Continued failure or refusal on the part of the Contractor to make any or all necessary repairs promptly, fully and in an acceptable manner shall be sufficient cause for the County, at its option, to perform the Work with its own organization, or to contract with any other individual, firm or corporation to perform the Work. All costs and expenses incurred thereby shall be charged against the defaulting Contractor and the amount thereof deducted from any moneys due or which may become due him, or shall be charged against the applicable bond. Any Work performed subsequent to forfeiture of the Agreement, as described in this Paragraph, shall not relieve the Contractor in any way of its responsibility for the Work performed by it.

4. Inspection by the Federal Government: When the Work involves the Federal Government it is to pay a portion of the cost of construction the construction Work will be subject to inspection by its representatives as they may deem necessary, but such inspection will in no case make the Federal Government a party to Agreement.

5.21. CONTRACT TIME AND TIME EXTENSIONS

A. Unless otherwise provided, Agreement Time shall mean the number of consecutive calendar days from the commencement date noted in the Notice to Proceed to the date on which all Work is to be completed. The Contractor shall diligently pursue the completion of the Work and coordinate the Work being done on the Project by its subcontractors and material suppliers, as well as coordinate its Work with the Work of other contractors so that his Work or the Work of others shall not be delayed or impaired by any act or omission of any act by a Contractor. The Contractor shall coordinate and schedule the Work to allow, without delays to the Contract, for any sampling and testing activities deemed necessary by the Design

Professional/Engineer/Project Manager. The Contractor shall be solely responsible for all construction means methods, techniques, sequences and procedures, as well as coordination of all portions of the Work under the Contract Documents.

B. Should the Contractor be obstructed or delayed in the prosecution of or completion of the Work as a result of unforeseeable causes beyond the control of the Contractor, and not due to his fault or neglect, including but not restricted to acts of God or the public enemy, acts of government, fires, floods, discovery of pre-existing hazardous materials, utility conflicts, epidemics, quarantine regulations, strikes or lockouts, the Contractor shall notify the Design Professional/Engineer/Project Manager in writing within 2 regular Work days after the commencement of such delay, stating the cause or causes thereof, or be deemed to have waived any right which the Contractor may have had to request the time extension. It is the contractor's responsibility to safely and appropriately secure the worksite prior to the approach of unfavorable weather conditions such as the onset of a tropical storm, hurricane, or similar event.

C. No interruption, interference, inefficiency, suspension or delay in the commencement or progress of the Work from any cause whatsoever, including those for which the County may be responsible, in whole or in part, shall relieve the Contractor of his duty to perform or give rise to any right to damages or additional compensation from the County. It being expressly acknowledged and agreed by the parties hereto that the Contractor shall receive no damages for delay. The Contractor's sole remedy, if any, against the County shall be the right to seek an extension to the Contract Time. Such extensions of time will not be granted for delays caused by unfavorable weather, ground conditions related to the weather, inadequate construction force or for the failure of the Contractor to timely order equipment or materials.

D. If the Contractor complies with the 2 regular workdays notice requirement, the Design Professional/Engineer/Project Manager shall ascertain the facts and the extent of the delay being claimed and recommend to the Board an extension to the Contract Time when, in the Design Professional/Engineer/Project Manager's sole judgment, the findings of fact justify such an extension, and the Design Professional/Engineer/Project Managers finding of fact shall be final and conclusive on the parties. The Contractor shall cooperate with the Design Professional/Engineer/Project Manager's investigation of the delays by providing any schedules, correspondence or other data that may be required to complete the findings of fact. Extensions of the Contract Time must be authorized by Change Order approved by the board.

5.22. PROSECUTION OF WORK ON SATURDAYS, SUNDAYS AND RECOGNIZED HOLIDAYS

A. All Work must be done during Regular Workday hours (7:00 AM to 7:00 PM) Monday through Friday. The County may require alternative Work hours due to specific individual Project conditions when necessary. Work will not be done beyond hours specified herein or on Saturdays, Sundays or holidays unless authorized in advance by the Design

Professional/Engineer/Project Manager to meet special requirements. Contractor must comply with the County noise ordinance.

B. Work will not be permitted on Saturdays, Sundays and recognized Holidays unless permission to Work has been requested in writing by the Contractor and approval, in writing, has been granted by the Design Professional/Engineer/Project Manager. Request for permission to Work must be received by the Design Professional/Engineer/Project Manager no less than 24 hours prior to the regular Workday.

C. No Work will be permitted on:

1. New Year's Day
2. Independence Day
3. Thanksgiving Day
4. Christmas Day

D. When approval is granted in accordance with the provisions stated above, Work will be allowed on:

1. Martin Luther King, Jr. Day
2. Memorial Day
3. Juneteenth
4. Labor Day
5. Veterans Day
6. Friday after Thanksgiving Day
7. If Christmas or New Year's Day shall fall on Tuesday or Thursday, the preceding Monday or the following Friday shall be recognized as a holiday also. If any recognized holiday shall fall on a Saturday, the preceding Friday shall be observed as a holiday. If any recognized holiday shall fall on a Sunday, the following Monday shall be observed as a holiday.

5.23. WEEKEND/HOLIDAY RATE

A. The Contractor shall pay to the County, as reimbursement of costs incurred by the County, the sum of **$**N/A(Sat & Sun) per man hour for each Saturday and Sunday, and **$**N/Aper man hour for each holiday, on which the Contractor works.

B. Payment to the County of such sums as may become payable under the provisions of this paragraph shall be made by identifying the said sums as a credit item on the Contractor's pay estimate for the period during which the liability for the sums occurred. The credit item shall show the total number of days applicable, times the corresponding per day or per hour cost.

5.24. LIQUIDATED DAMAGES

A. The County and the Contractor recognize that, since time is of the essence for this Agreement, the County will suffer financial loss if the Work is not completed within the time specified.

B. The County shall be entitled to assess, as liquidated damages, but not as a penalty, **$**N/A for each Calendar Day after the Contract Time. The Project shall be deemed to be completed on the date the Work is deemed complete to the satisfaction of the Design Professional/Engineer/Project Manager. The Contractor hereby expressly waives and relinquishes any right which it may have to seek to characterize the above-noted liquidated damages as a penalty. The parties agree that the liquidated damages sum represents a fair and reasonable estimate of the County's actual damages at the time of contracting if the Contractor fails to complete the Work in a timely manner.

5.25. PINELLAS COUNTY'S COMMITMENT TO SAFETY

A. All work shall be completed in a safe manner and consideration for cost of any equipment needed to perform contract in a safe manner, including personal protection equipment, shall be included in the contract bid.

B. If County discovers an unsafe act or condition in contractor's performance under this contract, County shall inform Design Professional/Engineer/Project Manager of unsafe act or condition. If unsafe act or condition poses the threat of imminent danger, Design Professional/Engineer/Project Manager shall be authorized to stop work until unsafe act or condition is remedied. No time extension shall be allowed. If remedy causes contractor to fail to meet the time specified, County shall be entitled to liquidated damages. If unsafe act or condition does not pose the threat of imminent danger, Design Professional/Engineer/Project Manager shall be authorized to require contractor to remedy the unsafe act or unsafe condition as soon as possible, but in no event later than 3 days from date of notice. No time extension shall be allowed. If remedy causes contractor to fail to meet the time specified, County shall be entitled to liquidated damages as outlined in Liquidated Damages.

5.26. CHANGES IN THE WORK

A. Without invalidating the Agreement, the Design Professional/Engineer/Project Manager may at any time, by written order, direct extra Work within the general scope or alter the Work by addition or deduction of items that do not alter the scope of the Work. Such changes may be affected by Field Order or by other written order. Such changes shall be binding on the Contractor. No officer, employee, or agent of the County is authorized to direct any extra or change Work orally.

B. If changes to the Scope of the Work are required or if the Contract time or the total Contract Amount is increased by the additional Work, a Change Order approved by the Board will be required.

C. The value of such extra Work or change shall be determined by schedule of values if applicable unit values are set forth in the Agreement. The amount of the change shall be computed from such values and added to or deducted from the Agreement Amount. If the applicable unit values are not in the Contract, the value of such extra Work or change shall be determined by negotiation.

D. Should a Change Order be required, and the County and the Contractor are unable to agree on the requested change, the Contractor shall, nevertheless, promptly perform the change as directed in writing by the Design Professional/Engineer/Project Manager. If the Contractor disagrees with the Design Professional/Engineer/Project Manager's adjustment determination, the Contractor must make a claim pursuant to the Claims and Dispute Section herein, or else be deemed to have waived any claim on this matter it might otherwise have had.

E. For new Work not covered by schedule of values, the amount of an increase shall be limited to the Contractor's reasonable direct labor and material costs and reasonable actual equipment costs as a result of the change (including allowance for labor burden costs) plus a maximum 10% markup for all overhead and profit. In the event such change Work is performed by a subcontractor, a maximum 10% markup for all overhead and profit for all subcontractors' direct labor and material costs and actual equipment costs shall be permitted, with a maximum 5% markup thereon by the Contractor for all of its overhead and profit, for a total overall maximum markup of 15% of the amount of change Work. Sales and use taxes are not subject to the markup allowance. Material provided by the Contractor, for use by the Subcontractor, is only allowed the 10% markup by the Contractor. All compensation due the Contractor and any Subcontractor or sub-subcontractor for field and home office overhead is included in the markups noted above.

F. In an emergency endangering life or property, or as expressly set forth herein, the Design Professional/Engineer/Project Manager has the authority to order the necessary Work in writing. The County shall not be liable to the Contractor for any increased compensation without such written order. The payment authorized by a written order shall represent full and complete compensation to the Contractor for labor, materials, incidental expenses, overhead, profit, impact costs, and time associated with the Work authorized by such written order.

G. Execution by the Contractor of a properly authorized Change Order (see Appendix Sample Change Order) shall be considered a waiver of all claims or requests for additional time or compensation for any activities prior to the time of execution related to items included in the Change Order.

5.27. CLAIMS AND DISPUTES

A. A Claim is a demand or assertion by one of the parties seeking an adjustment or interpretation of the terms of the Contract Documents, payment of money, extension of time or other relief with respect to the terms of the Contract Documents. The term "Claim" also includes other

disputes and matters in question between the County and the Contractor arising out of or relating to the Contract Documents. The responsibility to substantiate a claim shall rest with the party making the Claim.

B. Claims by the Contractor shall be made in writing to the Design Professional/Engineer/Project Manager within two (2) regular Workdays after the commencement of the event giving rise to such Claim or else the Contractor shall be deemed to have waived the claim. Written supporting data shall be submitted to the Design Professional/Engineer/Project Manager within 15 calendar days after the occurrence of the event, unless the County grants additional time in writing, or else the Contractor shall be deemed to have waived the Claim. All Claims shall be priced in accordance with provisions of the section in this document entitled Changes in the Work.

C. The Contractor shall proceed diligently with its performance as directed by the County, regardless of any pending Claim, action, suit, or administrative proceeding, unless otherwise agreed to by the County in writing. The County shall continue to make payments in accordance with the Contract Documents during the pendency of any Claim.

5.28. MEASUREMENT AND PAYMENT

A. All Work completed under the terms of this Agreement shall be measured according to United States Standard Measures.

B. All measurements shall be taken horizontally or vertically, unless specifically provided otherwise.

C. In the measurement of items to be paid for on the basis of area of finished Work, when the pay quantity is designated to be determined by calculation, the lengths and/or widths to be used in the calculations shall be the station-to-station dimensions shown on the Plans, the station-to-station dimensions actually constructed within the limits designated by the Design Professional/Engineer/Project Manager, or the final dimensions measured of the completed Work within the lines shown on the Plans or designated by the Design Professional/Engineer/Project Manager. The method, or combination of methods, shall be those which reflect with reasonable accuracy the actual area of finished Work as determined and authorized by the Design Professional/Engineer/Project Manager.

D. No payment will be made for either construction over a greater area than authorized, or for material moved from outside of stakes and data shown on the Plans, except when such Work is performed upon instructions of the Design Professional/Engineer/Project Manager.

E. The Contractor shall accept compensation provided under the terms of this Agreement as full payment for furnishing all materials and for performing all Work contemplated and embraced under this Agreement. Such compensation shall also be for any and all loss or damage arising out of the nature of the Work or from the action of the elements, or from any unforeseen

difficulties or obstructions encountered during the Agreement Time until final acceptance by the County.

F. Whenever any change, or combination of changes in the Plans, results in an increase or decrease in the original Contract quantities, and the Work added or decreased/eliminated is of the same general character as that called for in the Plans, the Contractor shall accept payment in full at the original schedule of values for the actual quantity of Work performed, with no allowance for any loss of anticipated profits.

G. Where the pay quantity for an item is designated to be Lump Sum, and the Plans or Specifications indicate an estimated quantity, compensation for that item will be adjusted proportionately if a plan change results in a significant change in the quantity from such estimated plan quantity.

H. Failure to construct any item to plan or authorized dimensions within the Specification tolerances shall result in reconstruction by the Contractor to acceptable tolerances at no additional cost to the County, acceptance at no pay, or acceptance at reduced final pay as determined by the Design Professional/Engineer/Project Manager. Adjustments to final pay for those items designated to be paid on the basis of Lump Sum quantity under these provisions shall not be made unless such adjustments results in an aggregate change per item of more than $1,000.00 for earthwork items, or more than $100.00 for any other item.

I. At the discretion of the Design Professional/Engineer/Project Manager, the County will allow partial payments for new materials that will be permanently incorporated into the Project and are stored in approved locations in the Project vicinity. Said materials are described as having the greatest impact on completing the Project on time; and can fluctuate as the Project progresses. Contractor shall store materials so that they will not be damaged by the elements and in a manner that identifies the Project on which they are to be used. The following conditions apply to all payments for stored materials:

    1. There must be reasonable assurance that the stored material will be incorporated into the specific Project on which partial payment is made.

    2. The stored material must be approved as meeting applicable Specifications.

    3. The total quantity for which partial payment is made shall not exceed the estimated total quantity required to complete the Project.

    4. The Contractor shall furnish the County with copies of certified invoices to document the value of the materials received. The contractor’s documentation for stored materials payment shall also include a reconciliation of the beginning balance, materials purchased, materials used, and ending balance. The amount of the partial payment will be determined from invoices for the material not to exceed one half of the unit value bid in the Contract.

5. Delivery charges for materials delivered to the jobsite will be included in partial payments if properly documented on the certified invoices for the materials received.

6. Partial payments will not be made for materials which were stored prior to award of the Contract for the Project.

7. If payment is made the materials shall become the property of the County. The Contractor shall be responsible for loss or theft and shall replace, at the Contractor's expense, any such materials lost for any reason.

5.29. PAYMENTS TO CONTRACTOR

A. Prior to submitting its first monthly Application for Payment, Contractor shall submit to the Design Professional/Engineer/Project Manager, for its review and approval, a Schedule of Values based upon the "Contract Amount" and the Construction Progress Schedule numbering system format listing the major elements of the Work and the dollar value for each element. After its approval by the County, this Schedule of Values shall be used as the basis for Contractor's monthly Application for Payment. This Schedule shall be updated and submitted each month to the Design Professional/Engineer/Project Manager along with a completed and notarized copy of the Application for Payment and any Payment Continuation forms.

B. Prior to submitting its first monthly Application for Payment, Contractor shall submit to the Design Professional/Engineer/Project Manager a complete list of all of its proposed subcontractors and materialmen, showing the Work and materials involved and the dollar amount of each proposed subcontract and purchase order. The first Application for Payment shall be submitted no earlier than 30 days after the Commencement Date.

C. If payment is requested on the basis of materials and equipment not incorporated into the Work, but delivered and suitably stored at the site or at another location agreed to by the Design Professional/Engineer/Project Manager in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice or other documentation warranting that the County has received the materials and equipment free and clear of all liens, charges, security interests and encumbrances, together with evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect the County's interest therein, all of which shall be subject to the County's satisfaction. Contractor shall complete a Schedule of Stored Materials form.

D. Contractor shall submit 3 notarized original copies of its monthly Application for Payment to Design Professional/Engineer/Project Manager for Work performed during the previous month. Invoices received after the previous month Application for Payment shall be considered for payment as part of the next month's application. Within 10 calendar days after receipt of each Application for Payment, Design Professional/Engineer/Project Manager shall submit to the County the approved Application for Payment in the amount recommended by Design Professional/Engineer/Project Manager as being due and owing Contractor. The County shall

pay Contractor that portion of Design Professional/Engineer/Project Manager's approved Application for Payment, which the County approves as being due and owing Contractor in accordance with §218.70-79, Florida Statutes ("Local Government Prompt Payment Act").

E. Monthly payments to Contractor shall in no way imply approval or acceptance of Contractor's Work.

F. Monthly payments will be made to the Contractor. Estimates of quantities will be prepared monthly by the Contractor, based on unit values or the Schedule of Values, as applicable to the Project. The Design Professional/Engineer/Project Manager's project representative will be required to verify these estimates with the Contractor and sign the estimate in agreement. The payment estimate will then be checked by the Design Professional/Engineer/Project Manager, who will reconfirm with the Contractor any required corrections, before further processing of payments.

G. Retainage: If progress satisfactory to the County is being made by the Contractor, the Contractor will receive partial payments on this Agreement as the Work progresses, based upon estimates of the amount of Work done less payments previously made. In each case 5% of the Agreement Amount earned shall be retained until satisfactory completion and final acceptance of the Project, and final compliance by the Contractor with all terms and conditions of the Contract Documents. Neither progress payment nor partial or entire use or occupancy of the Project by the County shall constitute an acceptance of Work not in accordance with the Contract Documents. The County, prior to making of any payment, may require the Contractor to furnish a certificate or other evidence showing the amount of Work done or completed at that time.

H. Invoices: See Instructions & General Conditions for Submittals, PAYMENTS/INVOICES subsection.

5.30. ACCEPTANCE AND FINAL PAYMENT

A. Final Inspection: Whenever all materials have been furnished, all Work has been performed, and the construction specified by the Contract has been satisfactorily completed, the Consultant and Engineer/Project Manager will make the final inspection.

B. Maintenance of Work: The Contractor shall maintain all Work in first-class condition until final inspection is completed and accepted by the Design Professional/Engineer/Project Manager. All Bonds and Insurance shall be maintained until final acceptance by the Board.

C. Substantial Completion: When the Work, or any portion thereof, as designated by the County is sufficiently complete, in accordance with the Contract Documents, and is ready for its intended use, the Design Professional/Engineer/Project Manager and any other invited parties shall make an inspection of the Work or portion thereof so designated as complete to verify its completeness and develop a punch list of items needing completion or correction before final payment can be made. The County shall have the right to exclude the Contractor from these portions of the Work designated as complete after the inspection, however, the Contractor will

have reasonable access to complete or correct items on the punch list. The punch list shall be completed by the Design Professional/Engineer/Project Manager within the timeframes provided by Florida Statute Section 218.735(7)(a).

D. Final Acceptance

1. Whenever the Work provided for under the Agreement has been completely performed by the Contractor, and the final inspection has been made by the Design Professional/Engineer/Project Manager, a final pay request showing the value of the Work will be prepared by the Design Professional/Engineer/Project Manager as soon as the necessary measurements and computations can be made. All prior estimates and payments shall be subject to correction in the final estimate and payment. The amount of this estimate, less any sums that may have been deducted or retained under the provisions of the Agreement, will be paid to the Contractor as soon as practicable, after the Contractor has furnished a sworn Affidavit, to the effect that all bills are paid and no suits are pending, and after the Contractor has agreed in writing to accept the balance due, as determined by the County, as full settlement of its account under Agreement and of all claims in connection therewith.

2. The surety on the Contract bonds consents, by completion of its portion of the affidavit and surety release subsequent to the Contractor's completion of its portion, to final payment to the Contractor and agrees that the making of such payment shall not relieve the surety of any of its obligations under the bonds.

E. Waiver of Claims

1. The Contractor's acceptance of final payment shall constitute a full waiver of any and all Claims by the Contractor against the County arising out of this Agreement or otherwise related to the Project, except those previously made in writing and identified by the Contractor as unsettled at the time the final estimate is prepared.

2. Neither the acceptance of the Work nor payment by the County shall be deemed to be a waiver of the County's rights to enforce any continuing obligations of the Contractor hereunder or to the recovery of damages for defective Work not discovered by the County at the time of final inspection.

F. Termination of Contractor's Responsibility: The Agreement will be considered complete when all Work has been completed and has been accepted by the Board. The Contractor will then be released from further obligation except as set forth in his bonds and in this Division.

G. Recovery Rights, Subsequent to Final Payment: The County reserves the right, should an error be discovered in the partial or final estimates, or should proof of defective Work or materials used by or on the part of the Contractor be discovered after the final payment has been made,

to claim and recover from the Contractor or its surety, or both, by process of law, such sums as may be sufficient to correct the error or make good the defects in the Work and materials.

5.31. PAYMENTS WITHHELD

To the maximum extent permitted by §218.735, Florida Statutes (2007), the Design Professional/Engineer/Project Manager may decline to certify for payment or County may decline to approve any Certificate for Payment, or portions thereof issued by Design Professional/Engineer/Project Manager, because of subsequently discovered evidence or subsequent inspections. County may nullify the whole or any part of any Certificate for Payment previously issued and County may withhold any payments otherwise due Contractor under this Agreement or any other agreement between County and Contractor, to such extent as may be necessary in County's opinion to protect it from loss because of: (a) defective Work not remedied; (b) third party claims filed or reasonable evidence indicating probable filing of such claims; (c) failure of Contractor to make payment properly to subcontractors or for labor, materials or equipment; (d) reasonable doubt that the work can be completed for the unpaid balance of the Contract Amount; (e) reasonable indication that the Work will not be completed within the Contract Completion Time; (f) unsatisfactory prosecution of the Work by Contractor; or (g) any other material breach of the Contract Documents. If these conditions are not remedied or removed, County may, after 3 days written notice, rectify the same at Contractor's expense. County also may offset against any sums due Contractor the amount of any liquidated or un-liquidated obligations of Contractor to County, whether relating to or arising out of this Agreement or any other agreement between Contractor and County.

5.32. COVENANT AGAINST CONTINGENT FEES

The Contractor warrants that no person or selling agency has been employed or retained to solicit or secure this Agreement upon an agreement or understanding for a commission, percentage, brokerage or contingent fee, except bona fide employees of bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business. For breach or violation of this warranty the County shall have the right to annul this Agreement without liability or, in its discretion, to deduct from the Agreement Amount/Job Order Amount or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage or contingent fee.

5.33. LANDS FOR WORK AND ACCESS THERETO

A. The County will furnish and define the limits of land for access to the construction site and for the site proper. All information shown in the Contract Documents constitutes the extent of land provided by the County. Any and all other lands required by the Contractor shall be procured by the Contractor at the Contractor's expense.

B. As the work progresses, the Contractor shall keep the site reasonably clear of rubbish, trash, waste and other disposable materials on a daily basis. If the Contractor allows the site to become littered and unsightly, any payments otherwise due may be withheld until the Contractor cleans up the site to the satisfaction of the Design Professional/Engineer/Project Manager. If the Contractor fails to clean-up the site, the County may choose to clean-up the site at the Contractor's expense.

C. Temporary buildings (storage sheds, shops, offices, etc.) may be erected by the Contractor only with the approval of the Design Professional/Engineer/Project Manager after obtaining necessary permits, and shall be built with labor and materials furnished by the Contractor without expense to the County. Such temporary buildings and/or utilities shall remain the property of the Contractor and will be removed by the Contractor at its expense upon the completion of the Work. With the written consent of the Design Professional/Engineer/Project Manager, such buildings and/or utilities may be abandoned and need not be removed.

D. The Contractor shall confine all construction equipment, the storage of materials and equipment and the operations of workers to the Project site and land and areas identified in and permitted by the Contract Documents, and shall not unreasonably encumber the Project site with construction equipment or other material or equipment. The Contractor shall assume full responsibility for any damage to any such land or area, or to the County or occupant thereof, or any land or areas contiguous thereto, resulting from the performance of the Work.

5.34. SITE INVESTIGATION

A. The Contractor shall visit the site of the proposed Work and fully acquaint themself with conditions relating to construction and labor so that they may fully understand the facilities, difficulties and restrictions attending the execution of Work under the Agreement. The Contractor shall thoroughly examine and be familiar with the Contract Documents/Detailed Scope of Work. Failure or omission of the Contractor to receive or examine any form, instrument, addendum, or other documents, or to visit the site and acquaint themself with conditions existing thereon, shall in no way relieve the Contractor from any obligation with respect to the Agreement.

B. The County does not warrant the accuracy or completeness of these reports, soil samples, or any other site condition information or data made available including, but not limited to, underground utility location. The submission of a bid shall be taken as prima-facie evidence of compliance with this paragraph.

C. The Contractor acknowledges that they have satisfied themself as to the nature and location of the Work; the general and local conditions, including but not restricted to, those bearing upon transportation, disposal, handling and storage of materials; availability of labor, water, electric power, roads; and uncertainties of weather, river stages, tides or similar physical conditions at the site; the conformation and conditions of the ground; the character of equipment and facilities needed preliminary to and during prosecution of the Work.

D. The Contractor further acknowledges that they have satisfied themself as to the character, quality and quantity of surface and subsurface materials, obstacles, or conditions to be encountered.

E. Any failure by the Contractor to acquaint themself with any aspect of the Work or with any of the applicable conditions shall not relieve the Contractor from responsibility for adequately

evaluating the difficulty or cost of successfully performing the Work under the Contract Documents, nor shall it be considered the basis for any claim for additional time or compensation.

F. The County assumes no responsibility for any conclusions or interpretations made by the Contractor on the basis of the information made available by the County. The County also assumes no responsibility for any understanding or representations made by its officers or agents during or prior to the execution of this Agreement, unless such understanding or interpretations are made in writing.

5.35. PROTECTION OF EXISTING STRUCTURES, UTILITIES, WORK AND VEGETATION

A. Location of existing structures and utilities provided in the Contract Documents are approximate only. Any damage to existing structures or Work of any kind, or the interruption of a utility service resulting from failure to comply with the requirements of the Contract Documents, shall be repaired or restored promptly by, and at the expense of the Contractor.

B. The Contractor will preserve and protect all existing vegetation such as trees, shrubs and grass on or adjacent to the site which do not unreasonably interfere with the construction as may be determined by the Design Professional/Engineer/Project Manager. The Contractor will be responsible for all unauthorized cutting or damaging of trees and shrubs, including damage due to careless operation of equipment, stockpiling of materials or tracking of grass areas by equipment.

C. The Contractor's attention is directed to the fact that Type "A" or Type "B" TREE PROTECTION BARRIERS, as per Pinellas County Design Professional/Engineer/Project Manager Department Index No. 1111, shall be constructed when called for on the Plans, or as directed by the Design Professional/Engineer/Project Manager. Barriers shall be maintained in place until their removal is directed by the Design Professional/Engineer/Project Manager.

D. Care will be taken by the Contractor in felling trees authorized for removal to avoid unnecessary damage to vegetation that is to remain in place. Any limbs or branches of trees broken during such operations shall be trimmed without cutting into the trunk and left with a clean cut and a small stub. The Contractor will be liable for, or may be required to replace or restore at its own expense, all vegetation that may be destroyed or damaged due to the Contractor's failure to protect and preserve same as required herein.

E. Where the Contractor hauls material or equipment to the Project over roads and bridges on the State road system, County road system or City street system, and such use causes damage, the Contractor shall immediately, at its expense, repair such road or bridge to as good a condition as before the hauling began. Such hauling shall be conducted in accordance with all applicable environmental and safety regulations.

F. The Contractor shall fully protect the Work from loss or damage and shall bear the cost of any such loss or damage until final payment has been made. If the Contractor or any one for whom the Contractor is legally liable for is responsible for any loss or damage to the Work, or other Work or materials of the County or County's separate contractors, the Contractor shall be charged with the same, and any monies necessary to replace such loss or damage shall be deducted from any amounts due the Contractor.

G. The Contractor shall not disturb any benchmark established by the County with respect to the Project. If the Contractor, or its subcontractors, agents or any one for whom the Contractor is legally liable, disturbs County benchmarks, the Contractor shall immediately notify the Design Professional/Engineer/Project Manager. The County shall have the benchmarks reestablished and the Contractor shall be liable for all costs incurred by the County associated therewith.

5.36. OTHER WORK

A. The Contractor will cooperate with County forces or others who may be engaged in authorized Work prior to final completion of the Project.

B. The Contractor shall cooperate with the owners of any underground or overhead utility lines in their removal and rearrangement operations in order that these operations may progress in a reasonable manner and that service rendered by these parties will not be interrupted.

C. The County may perform other Work related to the Project at the site by the County's own forces, have other Work performed by utility owners or let other direct contracts. If the fact that such other Work is to be performed is not noted in the Contract Documents, notice thereof will be given to the Contractor. If the Contractor believes that such performance will involve additional expense to the Contractor or require additional time, the Contractor shall send written notice of that fact to the County and the Design Professional/Engineer/Project Manager within 48 hours of being notified of the other Work. If the Contractor fails to send the above required 48 hour notice, the Contractor will be deemed to have waived any rights it otherwise may have had to seek an extension to the Agreement Time or adjustment to the Agreement Amount. The Contractor shall afford each utility owner and other contractors (or the County, if the County is performing the additional Work with the County's employees) proper and safe access to the site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such Work and shall properly connect and coordinate its Work with theirs. The Contractor shall not endanger any Work of others by cutting, excavating or otherwise altering their Work and will only cut or alter their Work with the written consent of the Design Professional/Engineer/Project Manager and the others whose Work will be affected.

D. If any part of the Contractor's Work depends, for proper execution or results, upon the Work of any other contractor other than a subcontractor or utility owner, the Contractor shall inspect and promptly report to the Design Professional/Engineer/Project Manager, in writing, any delays, defects or other problems in such other Work that render it impossible for the

Contractor to obtain proper execution or results. The Contractor's failure to report will constitute an acceptance of the other Work as fit and proper for integration with the Contractor's Work.

5.37. TERMINATION

A. Termination for Default:

1. The Contractor shall be considered in material default of the Agreement and such default shall be considered cause for the County to terminate the Agreement, in whole or in part, as further set forth in this paragraph, for any of the following reasons:

   a. Failing to begin Work under the Contract Documents within the time specified herein;

   b. Failing to properly and timely perform the Work as directed by the Design Professional/Engineer/Project Manager or as provided for in the approved Construction Progress Schedule;

   c. Performing the Work unsuitably or neglecting or refusing to remove materials or to correct or replace such Work as may be rejected as unacceptable, unsuitable or otherwise defective;

   d. Discontinuing the prosecution of the Work;

   e. Failing to resume Work that has been suspended within a reasonable time after being notified to do so;

   f. Becoming insolvent or declared bankrupt, or committing any act of bankruptcy;

   g. Allowing any final judgment to stand unsatisfied for more than ten days;

   h. Making an assignment for the benefit of creditors;

   i. Failing to obey laws, ordinances, regulations or other codes of any governmental authority with jurisdiction on the Project;

   j. Failing to perform or abide by the terms or spirit of the Contract Documents.

2. The County shall notify the Contractor in writing of the Contractor's default. If the County determines that the Contractor has not taken substantial steps toward effecting a remedy or cure of the default or defaults in its performance within seven (7) calendar days following receipt by the Contractor of written notice of default or defaults, then the County, at its option, without releasing or waiving its rights and remedies against the Contractor's sureties, and without prejudice to any other right it may be entitled to hereunder or by law, may terminate the Contractor's right to proceed under this Agreement, in whole or in part, and may take possession of the Work and any materials, tools, equipment, and appliances of the Contractor, take assignments of any of the Contractor's subcontracts and purchase

orders and complete the Contractor's Work by whatever means, method or agency which the County, in its sole discretion, may choose.

3. If the County deems any of the foregoing remedies necessary, the Contractor agrees it shall not be entitled to receive any further payment until after the Work is completed. All money expended and all of the costs, losses, damages and extra expenses, including all management, administrative and other overhead and other direct and indirect expenses, (including Design Professional/Engineer/Project Manager and Architectural fees) or damages incurred by the County incident to such completion, shall be deducted from the Agreement Amount, and if such expenditures exceed the unpaid balance of the Agreement Amount, the Contractor agrees to pay promptly to the County on demand, the full amount of such excess, including costs of collection, and interest thereon at the maximum legal rate of interest until paid. The liability of the Contractor hereunder shall extend to and include the full amount of any and all sums paid, expenses and losses incurred, damages sustained and obligations assumed by the County in good faith under the belief that such payments or assumptions were necessary or required, in completing the Work and providing labor, materials, equipment, supplies, and other items therefore or relating to the Work, and in settlement, discharge, or compromise of any claims, demands, suits or judgments pertaining to or arising out of the Work hereunder.

4. If after notice of termination of the Contractor's right to proceed pursuant to this subparagraph A, "Termination for Default", it is determined for any reason that the Contractor was not in default or that its default was excusable, or that the County is not entitled to the remedies against the Contractor provided herein, then the Contractor's remedies against the County shall be the same as and limited to those afforded the Contractor pursuant to the Termination for Convenience subparagraph B below.

B. Termination for Convenience and Right of Suspension:

1. The County shall have the right to terminate or suspend this Agreement, in whole or in part; without cause upon seven (7) calendar days written notice to the Contractor.

2. In the event of such termination or suspension for convenience, the Contractor's sole recovery against the County shall be limited to that portion of the Agreement Amount earned through the date of termination or suspension, together with any retainage withheld and reasonable termination or suspension expenses incurred, but the Contractor shall not be entitled to any other or further recovery against the County, including, but not limited to, damages and any anticipated profit or Work not performed.

5.38. MATERIALS

A. Delivery Tickets: The Contractor shall submit a copy of all delivery tickets for materials used on the Project, regardless of the basis of payment.

B. Job Mix Formula for Asphaltic Concrete: Attention is directed to the provisions of the "PINELLAS COUNTY, FLORIDA - SPECIFICATIONS FOR HOT BITUMINOUS MIXTURES, PLANT METHODS, EQUIPMENT AND CONSTRUCTION METHODS, latest edition," which require the submission of job mix formulas for asphaltic concrete, of the type specified, at least 14 days before plant operations begin. The submitted formula shall be approved by the Project Manager. The Contractor shall prepare the mix formula to be submitted to the Project Manager.

C. Job Mix Formula for Portland Cement Concrete: Attention is directed to the requirement that job mix design formulas for all Portland Cement Concrete, of the type specified, be submitted at least fourteen (14) days prior to use on the Project. The submitted formulas shall be approved by the County and/or its agents prior to its use. All concrete mix designs shall meet Florida D.O.T. Concrete Class mix guidelines or the requirements included in the Technical Specifications included in these Contract Documents.

D. All Job mix formulas shall be submitted to the Project Manager.

5.39. SUBSTITUTIONS/ APPROVED EQUAL(S) PRIOR TO BID OPENING

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

B. No substitution will be considered prior to receipt of Bids unless a written request for approval has been received by the Pinellas County Purchasing Department, by the question deadline on page 1. Each such request shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitute including drawings, cuts, performance and test data and any other information necessary for an evaluation. A statement setting forth any changes in other materials, equipment or other Work that incorporation of the substitute would require shall be included. The burden of proof of the merit of the proposed substitute is upon the proposer. The decision of approval or disapproval of a proposed substitution shall be final.

C. If the Purchasing Director approves any 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.

5.40. SUBMITTALS AFTER AWARD

A. Schedule

1. At or before the Preconstruction Conference, the Contractor shall submit a preliminary Construction Progress Schedule to the Design Professional/Engineer/Project Manager. The County will review the schedule and provide the Contractor with comments. Within 10 days after receipt of the County's comments, the Contractor shall deliver to the Design Professional/Engineer/Project Manager a Construction Progress Schedule in a form

satisfactory to the Design Professional/Engineer/Project Manager and showing the proposed dates of commencement and completion of each of the various subdivisions of Work. At or before the Preconstruction Conference, the Contractor shall provide to the County a breakdown of estimated monthly payments for the entire duration of the Agreement period.

2. For lump sum items within the Pricing Proposal Section, the Contractor shall also furnish the Design Professional/Engineer/Project Manager with a detailed estimate giving a complete breakdown of the value of items of Work to be paid for the purpose of making partial payments thereon. The values employed in making up this estimate and the schedule will be used only for determining the basis of partial payment and will not be considered as fixing a basis for additions to or deductions from the Agreement Amount.

3. The Construction Progress Schedule shall be updated monthly by the Contractor. All updates to the Construction Progress Schedule shall be subject to the Design Professional/Engineer/Project Manager's review and County's written approval. Contractor shall submit the updates to the Progress Schedule with its monthly applications for payment noted below. Contractor's submittal of these monthly updates and Design Professional/Engineer/Project Manager's written approval of same shall be a condition precedent to County's obligation to pay Contractor.

4. The Work shall be planned and carried out so as to minimize the interruption of existing services, and/or traffic, or as directed by the Design Professional/Engineer/Project Manager.

B. Contractor shall carefully examine the Contract Documents for all requirements for approval of materials to be submitted such as shop Plans, data, test results, schedules and samples. Contractor shall submit all such materials at its own expense and in such form and manner as required by the Contract Documents in sufficient time to prevent any delay in the delivery of such materials and the installation thereof. Incomplete submittals will be returned to the Contractor. The Design Professional/Engineer/Project Manager will record time for submittals handled more than twice. The Contractor shall reimburse the County for charges of the Design Professional/Engineer/Project Manager and his/her consultants for providing more than two reviews of submittals.

C. Whenever materials or equipment are specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular supplier, the naming of the item is intended to establish the type, function and quality required. Unless the name is followed by words indicating that no substitution is permitted, materials or equipment of other suppliers may be accepted by the Design Professional/Engineer/Project Manager if sufficient information is submitted by Contractor to allow the Design Professional/Engineer/Project Manager to determine that the material or equipment proposed is equivalent or equal to that named. Requests for review of substitute items of material and equipment will not be accepted by Design Professional/Engineer/Project Manager from anyone other than Contractor and all

such requests must be submitted by Contractor to Design Professional/Engineer/Project Manager within 30 calendar days after notice of award is received by Contractor..

D. If Contractor wishes to furnish or use a substitute item of material or equipment, Contractor shall make application to Design Professional/Engineer/Project Manager for acceptance thereof, certifying that the proposed substitute shall perform adequately the functions and achieve the results called for by the general design, be similar and of equal substance to that specified and be suited to the same use as that specified. The application shall state that the evaluation and acceptance of the proposed substitute will not prejudice Contractor's achievement of substantial completion on time, whether or not acceptance of the substitute for use in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with County for the Project) to adapt the design to the proposed substitute and whether or not incorporation or use by the substitute in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute from that specified will be identified in the application and available maintenance, repair and replacement service shall be indicated. The application also shall contain an itemized estimate of all costs that will result directly or indirectly from acceptance of such substitute, including costs for redesign and claims of other contractors affected by the resulting change, all of which shall be considered by the Design Professional/Engineer/Project Manager in evaluating the proposed substitute. Design Professional/Engineer/Project Manager may require Contractor to furnish, at Contractor's expense, additional data about the proposed substitute.

E. If a specific means, method, technique, sequence or procedure of construction is indicated in or required by Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence or procedure of construction acceptable to Design Professional/Engineer/Project Manager, if Contractor submits sufficient information to allow Design Professional/Engineer/Project Manager to determine that the substitute proposed is equivalent to that indicated or required by the Contract Documents. The procedures for submission to and review by the Design Professional/Engineer/Project Manager shall be the same as those provided herein for substitute materials and equipment.

F. Design Professional/Engineer/Project Manager shall be allowed a reasonable time within which to evaluate each proposed substitute. Design Professional/Engineer/Project Manager shall be the sole judge of the acceptability of any substitute. No substitute shall be ordered, installed or utilized without the Design Professional/Engineer/Project Manager's prior written acceptance which shall be evidenced by either a Change Order or an approved submittal. County may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute. Design Professional/Engineer/Project Manager will record time required by Design Professional/Engineer/Project Manager and Design Professional/Engineer/Project Manager's consultants in evaluating substitutions proposed by Contractor and making changes in the Contract Documents occasioned thereby. Whether or not County accepts a proposed substitute, Contractor shall reimburse County for the charges of

Design Professional/Engineer and Engineers consultant(s) for evaluating each proposed substitute.

G. Shop Plans/Working Plans

1. 7 complete sets of detailed shop or working Plans shall be furnished by the prime Contractor to the Design Professional/Engineer/Project Manager for review and processing. The submittal shall include all details, computations, materials, loads, stresses, member sizes, deflections and temporary connections for pre-casting or any other relevant information on details necessary for review.

2. All shop, working and erection Plans prepared by the Contractor or its subcontractor, fabricator or supplier shall be REVIEWED, DATED, STAMPED, APPROVED, SEALED (if required), and SIGNED BY THE CONTRACTOR prior to submission for review to the Design Professional/Engineer/Project Manager. By approving and submitting shop or working Plans, the Contractor represents that it has verified Work requirements, field measurements, construction criteria, sequence of assembly and erection, access and clearances, catalog numbers and other similar data. Each submission shall indicate the Specification section or bid item number and page and/or sheet number to which the submission applies. Under no circumstances will submittals be accepted from subcontractors. The Contractor shall indicate on the working, shop and erection Plans all deviations from the Contract Documents and shall itemize all deviations in the letter of transmittal.

3. Submittals shall be made to the Design Professional/Engineer/Project Manager and will be distributed to the appropriate parties, as applicable. The Contractor shall identify each submittal by title on the form provided by the Design Professional/Engineer/Project Manager. All submittals are to be transmitted in an expeditious manner to ensure "next day delivery". After they have been reviewed by the Design Professional/Engineer/Project Manager, all submittals shall be stamped either "no exceptions," "exceptions noted" or "rejected" with resubmittal required and returned to the Contractor.

4. Prior to receipt of the reviewed shop or working Plans from the County, Work done or materials ordered for items covered by the Plans shall be done at the Contractor’s risk.

5. All submittals by the Contractor shall be made sufficiently in advance of the scheduled start of the applicable construction operation to allow for shop Plans review and for Contractor action required in addressing review comments. The review period shall begin on the day the submittal is received in the office of the Design Professional/Engineer/Project Manager and shall be completed on the day the Design Professional/Engineer/Project Manager transmits reviewed Plans to the Contractor.

6. The Contractor shall schedule the submission of shop drawing sheets (to be discussed at the pre-construction meeting) so that approximately 21 days are allowed for review by the Engineer and Consultant for routine Work. For more complex Work, the number of copies

and the scheduled time for review shall be increased proportionately to the complexity of the Work. Contractor submittals that are to be considered as complex and requiring proportionately greater review time include, but are not limited to, the following:

a. Contractor submittals of alternative design features or modifications to the original design.

b. Contractor submittals of complex designs, unusual construction or equipment and methods requiring analysis of design calculations.

H. Materials

1. Delivery Tickets: The Contractor shall submit a copy of all delivery tickets for materials used on the Project, regardless of the basis of payment.

2. Job Mix Formula for Asphaltic Concrete: Attention is directed to the provisions of the "PINELLAS COUNTY, FLORIDA - SPECIFICATIONS FOR HOT BITUMINOUS MIXTURES, PLANT METHODS, EQUIPMENT AND CONSTRUCTION METHODS, latest edition," which require the submission of job mix formulas for asphaltic concrete, of the type specified, at least 14 days before plant operations begin. The submitted formula shall be approved by the Design Professional/Engineer/Project Manager. The Contractor shall prepare the mix formula to be submitted to the Design Professional/Engineer/Project Manager.

3. Job Mix Formula for Portland Cement Concrete: Attention is directed to the requirement that job mix design formulas for all Portland Cement Concrete, of the type specified, be submitted at least 14 days prior to use on the Project. The submitted formulas shall be approved by the County and/or its agents prior to its use. All concrete mix designs shall meet Florida D.O.T. Concrete Class mix guidelines or the requirements included in the Technical Specifications included in these Contract Documents.

4. All Job mix formulas shall be submitted to the Design Professional/Engineer/Project Manager.

5. Concrete Box Culverts, Pipes, Drainage Structures: The Contractor shall submit written documentation that materials meet the minimum requirements of the technical specifications, including copies of supplier's testing results. No payment for the applicable pay item under the Agreement (i.e., Box Culvert, Pipe, Drainage structure, etc) shall be made to the Contractor until written documentation of the specified minimum requirements is received by the Design Professional/Engineer/Project Manager.

I. The Contractor will provide 8" X 10" color photographs of the Project in its preconstruction condition and for unusual conditions during construction. The photographs will show all pertinent physical features within the construction limits before construction begins. The Contractor will furnish two copies of all pictures to the County. The Contractor shall provide a hard copy and a digital copy for submittal. The Contractor will provide a preconstruction video

of all physical features within the construction limits before construction begins. The Contractor will furnish two copies of the video in DVD format.

5.41. RIGHT TO AUDIT

A. All of the Contractor's records related to the performance of this Agreement shall be open to inspection and subject to reproduction by the Design Professional/Engineer/Project Manager during normal working hours to the extent necessary to permit adequate evaluation and verification of any invoices for payment, or claims, submitted by the Contractor or any of its payees pursuant to the execution of the Agreement. Such records shall include, but not be limited to, accounting records, written policies and procedures, subcontractor files, original estimates, estimating work sheets, correspondence, Change Order files (including the documentation of negotiated settlements), any supporting evidence necessary to substantiate charges related to this Agreement, and any records necessary to evaluate and verify direct and indirect costs (including overhead allocations) as they may apply to costs associated with this Agreement.

B. For the purpose of such audits, inspections, examinations and evaluations the Design Professional/Engineer/Project Manager shall have access to the said records from the effective date of this Agreement, for the duration of the Work, and until five (5) years after the date of final payment by the County to the Contractor for performance under this Agreement. The Contractor hereby agrees to maintain said records in safe and dry storage until the end of this time period.

C. The Design Professional/Engineer/Project Manager shall have access to the Contractor's facilities and all necessary records in order to conduct audits in compliance with this Paragraph.

D. Such audit privilege is provided for within the text of the Pinellas County Code §2-156 through §2-187.

5.42. INTEREST ON JUDGMENTS

In the event of any disputes between the parties to this Agreement, including without limited thereto, their assignees and/or assigns, arising out of or relating in any way to this Agreement, which results in litigation and a subsequent judgment, award or decree against either party, it is agreed that any entitlement to post judgment interest, to either party and/or their attorneys, shall be fixed by the proper court at the rate of 5%, per annum, simple interest. Under no circumstances shall either party be entitled to pre-judgment interest. The parties expressly acknowledge and, to the extent allowed by law, hereby opt out of any provision of federal or state statute not in agreement with this Paragraph.

5.43. DRAINAGE

The Contractor shall so conduct its operations and maintain the Work in such condition that adequate drainage will be in effect at all times.

5.44. SURVEY AND LAYOUT

The requirements below (A-H), shall only be applicable when there is a pay item for the contractor to perform the Survey and Layout. If there is no separate pay item for "Survey and Layout by Contractor", then the County shall perform the Survey and Layout.

A. The Contractor shall be responsible for providing all lines, grades, boundaries and required survey and/or layout necessary to construct and inspect the Project. All right-of-way and easement boundaries and centerline control points shall be established and maintained through the Agreement Period by the Contractor.

B. The Contractor shall employ or retain the services of a Florida registered Professional Land Surveyor to perform and supervise the establishment and setting of the Project centerline control at intervals not to exceed 500 feet. All primary control points such as section corners, points of intersection, points of curvature and points of tangency shall be installed, referenced by acceptable standards, and maintained through the Agreement Period. All stakes and points shall be clearly marked and identified.

C. The Contractor shall employ or retain the services of a Florida registered Professional Land Surveyor to perform and supervise the establishment of all rights-of-way/boundary staking at all Project sidelines. Such staking shall be established and maintained by the Contractor's registered Professional Land Surveyor along each sideline or perimeter at each station and all points of intersection, points of curvature, and points of tangency. All stakes shall be clearly marked and identified.

D. The Contractor's registered Professional Land Surveyor and all employees engaged in survey efforts shall keep proper documentation of survey notes in hard bound books. The use of digital data storage capabilities may be used in lieu of hard bound books. Standard ASCII files/format shall be used with software compatibility to that of the Design Professional/Engineer/Project Manager's. The Contractor shall submit for approval the selected format and software application(s).

E. The Contractor may perform or select the option to employ a Florida registered Professional Design Professional/Engineer or registered Professional Land Surveyor to provide construction layout. All layout and measurements shall be performed from control and boundaries established and maintained by the Contractor's Florida registered Professional Land Surveyor.

F. The Contractor shall be responsible to perform all layout in acceptable standard methods. All items shall be clearly staked and marked. Roadway items shall be staked for horizontal alignment relative to the edge of pavement with appropriate offset stakes. All vertical grades should be referenced to the nearest even foot cut or fill where practical. Tabulated cut/fill sheets are acceptable for utility Work items, copies of which shall be furnished to the Design Professional/Engineer/Project Manager prior to the Work.

G. All calculations for intermediate grades and locations shall be performed by the Contractor. All calculations shall be transcribed in hard-bound field books prior to layout and staking.

H. The Contractor shall submit, for information only, a Survey and Layout Plan comprised of the following:

1. Name, address and certificate number of the registered Professional Land Surveyor to be in responsible charge of performing all survey control and boundary Work.

2. Name, address and certificate registration number, if applicable, of the person in responsible charge of performing all layout, measurements and calculations for the Project, if opted by the Contractor. This person must be a Contractor, Professional Land Surveyor or Professional Design Professional/Engineer.

5.45. CONFORMITY OF WORK WITH PLANS:

A. All Work performed and all materials furnished shall be in reasonably close conformity with the lines, grades, cross sections, dimensions, and material requirements, including tolerances, shown on the Plans or indicted in the Specifications.

B. In the event the Design Professional/Engineer/Project Manager or Consultant finds the materials or the finished product in which the materials are used not within reasonably close conformity with the Plans and Specifications, but that reasonably acceptable Work has been produced, he/she shall then make a determination if the Work shall be accepted and remain in place. In this event, the Design Professional/Engineer/Project Manager will document the basis of acceptance by Contract modification which will provide for an appropriate adjustment in the Agreement Amount for such Work or materials as he deems necessary to conform to his/her determination based on Design Professional/Engineer/Project Managers judgment.

5.46. LABORATORY TESTING

Cost of all required laboratory testing shall be borne by the County, except that the cost of all re-testing due to defective materials or construction shall be borne by the CONTRACTOR. Testing shall be in accordance with the applicable portions of Specifications and Plans. The Contractor shall also be responsible for all related laboratory costs associated with cancellation of scheduled testing due to Work not completed and ready for testing at the scheduled time.

5.47. GUARANTEE OF WORK

All Work shall be guaranteed for 12 months after the date on the certificate of completion and final acceptance of the Work unless otherwise specified. The guarantees are to be construed as being supplemental in nature and in addition to any and all other remedies available to the County under the laws of the State of Florida.

5.48. WARRANTY

The Contractor shall obtain and assign to the County all expressed warranties given to the Contractor or any subcontractors by any material suppliers, equipment or fixtures to be incorporated into a Project. The Contractor warrants to the County that any materials and equipment furnished under the Contract Documents shall be new unless otherwise specified, and that all Work shall be of good quality, free from all defects and in conformance with the Contract Documents. The Contractor further warrants to the County that all materials and equipment furnished under the Contract Documents shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instructions of the applicable manufacturers, fabricators, suppliers or processors except as otherwise provided for in the Contract Documents. Unless otherwise specified, if within 12 months after the date on the Certificate of Completion and final acceptance, any Work is found to be defective or not in conformance with the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Design Professional/Engineer/Project Manager. The Contractor shall also be responsible for and pay for replacement or repair of adjacent materials or Work which may be damaged as a result of such replacement or repair. These warranties are in addition to those implied warranties to which the County is entitled as a matter of law.

6. Insurance Requirements

6.1. INSURANCE (General)

The Vendor must provide a certificate of insurance and endorsement in accordance with the insurance requirements listed below, prior to recommendation for award. The Vendor shall obtain and maintain, and require any subcontractor to obtain and maintain, at all times during its performance of the Agreement in Phase 1 insurance of the types and in the amounts set forth. For projects with a Completed Operations exposure, Vendor shall maintain coverage and provide evidence of insurance for 2 years beyond final acceptance. All insurance policies shall be from responsible companies duly authorized to do business in the State of Florida and have an AM Best rating of VIII or better.

6.2. INSURANCE (Requirements)

A. Submittals should include, the Vendor's current Certificate(s) of Insurance. If Vendor does not currently meet insurance requirements, Vendor shall also include verification from their broker or agent that any required insurance not provided at that time of submittal will be in place prior to the award of contract. Upon selection of Vendor for award, the selected Vendor shall email certificate that is compliant with the insurance requirements. If the certificate received is compliant, no further action may be necessary. The Certificate(s) of Insurance shall be signed by authorized representatives of the insurance companies shown on the Certificate(s).

B. **The Certificate holder section shall indicate Pinellas County, a Political Subdivision of the State of Florida, 400 S Fort Harrison Ave, Clearwater, FL 33756. Pinellas County, a Political Subdivision shall be named as an Additional Insured for General Liability. A Waiver of Subrogation for Workers Compensation shall be provided if Workers Compensation coverage is a requirement.**

C. Approval by the County of any Certificate(s) of Insurance does not constitute verification by the County that the insurance requirements have been satisfied or that the insurance policy shown on the Certificate(s) of Insurance is in compliance with the requirements of the Agreement. County reserves the right to require a certified copy of the entire insurance policy, including endorsement(s), at any time during the Bid and/or contract period.

D. If any insurance provided pursuant to the Agreement expires or cancels prior to the completion of the Work, you will be notified by CTrax, the authorized vendor of Pinellas County. Upon notification, renewal Certificate(s) of Insurance and endorsement(s) shall be furnished to Pinellas County Risk Management at InsuranceCerts@pinellascounty.org and to CTrax c/o JDi Data at PinellasSupport@ididata.com by the Vendor or their agent prior to the expiration date.

    1. Vendor shall also notify County within twenty-four (24) hours after receipt, of any notices of expiration, cancellation, nonrenewal or adverse material change in coverage received by said Vendor from its insurer Notice shall be given by email to Pinellas County Risk

Management at InsuranceCerts@pinellascounty.org. Nothing contained herein shall absolve Vendor of this requirement to provide notice.

2. Should the Vendor, at any time, not maintain the insurance coverages required herein, the County may terminate the Agreement,.

E. If subcontracting is allowed under this Bid, the Primary Vendor shall obtain and maintain, at all times during its performance of the Agreement, insurance of the types and in the amounts set forth; and require any subcontractors to obtain and maintain, at all times during its performance of the Agreement, insurance limits as it may apply to the portion of the Work performed by the subcontractor; but in no event will the insurance limits be less than $500,000 for Workers' Compensation/Employers' Liability, and $1,000,000 for General Liability and Auto Liability if required below.

1. All subcontracts between the Vendor and its Subcontractors shall be in writing and are subject to the County's prior written approval. Further, all subcontracts shall

   a. Require each Subcontractor to be bound to the Vendor to the same extent the Vendor is bound to the County by the terms of the Contract Documents, as those terms may apply to the portion of the Work to be performed by the Subcontractor;

   b. Provide for the assignment of the subcontracts from the Vendor to the County at the election of Owner upon termination of the Contract;

   c. Provide that County will be an additional indemnified party of the subcontract;

   d. Provide that the County will be an additional insured on all insurance policies required to be provided by the Subcontractor except workers compensation and professional liability;

   e. Provide a waiver of subrogation in favor of the County and other insurance terms and/or conditions

   f. Assign all warranties directly to the County; and

   g. Identify the County as an intended third-party beneficiary of the subcontract. The Vendor shall make available to each proposed Subcontractor, prior to the execution of the subcontract, copies of the Contract Documents to which the Subcontractor will be bound by this Section C and identify to the Subcontractor any terms and conditions of the proposed subcontract which may be at variance with the Contract Documents.

F. Each insurance policy and/or certificate shall include the following terms and/or conditions:

1. The Named Insured on the Certificate of Insurance and insurance policy must match the entity's name that responded to the solicitation and/or is signing the agreement with the County.

2. Companies issuing the insurance policy, or policies, shall have no recourse against County for payment of premiums or assessments for any deductibles which all are at the sole responsibility and risk of Vendor.
3. The term "County" or "Pinellas County" shall include all Authorities, Boards, Bureaus, Commissions, Divisions, Departments and Constitutional offices of County and individual members, employees thereof in their official capacities, and/or while acting on behalf of Pinellas County.
4. All policies shall be written on a primary, non-contributory basis.

The minimum insurance requirements and limits for this Agreement, which shall remain in effect throughout its duration and for two (2) years beyond final acceptance for projects with a Completed Operations exposure, are as follows:

6.3. WORKERS' COMPENSATION INSURANCE

Worker's Compensation Insurance is required if required pursuant to Florida law. If, pursuant to Florida law, Worker's Compensation Insurance is required, employer's liability, also known as Worker's Compensation Part B, is also required in the amounts set forth herein.

A. Limits
   1. Employers' Liability Limits Florida Statutory
      a. Per Employee $ 500,000
      b. Per Employee Disease $ 500,000
      c. Policy Limit Disease $ 500,000

If Vendor is not required by Florida law, to carry Workers Compensation Insurance in order to perform the requirements of this Agreement, County Waiver Form for workers compensation must be executed, submitted, and accepted by Risk Management. The County Waiver Form is found at https://pinellas.gov/services/submit-a-workers-compensation-waiver-request/. Failure to obtain required Worker's Compensation Insurance without submitting and receiving a waiver from Risk Management constitutes a material breach of this Agreement.

6.4. COMMERCIAL GENERAL LIABILITY INSURANCE

Includes, but not limited to, Independent Vendor, Contractual Liability Premises/Operations, Products/Completed Operations, and Personal Injury. No crane weight, jig or boom exclusion allowed.

A. Limits
   1. Combined Single Limit Per Occurrence $ 1,000,000
   2. Products/Completed Operations Aggregate $ 2,000,000
   3. Personal Injury and Advertising Injury $ 1,000,000

4. General Aggregate $ 2,000,000

6.5. BUSINESS AUTOMOBILE OR TRUCKER'S/GARAGE LIABILITY INSURANCE

To cover owned, hired, and non- owned vehicles. If the Vendor does not own any vehicles, then evidence of Hired and Non-owned coverage is sufficient. Coverage shall be on an "occurrence" basis, such insurance to include coverage for loading and unloading hazards, unless Vendor can show that this coverage exists under the Commercial General Liability policy.

A. Limit

1. Combined Single Limit Per Accident $1,000,000

6.6. EXCESS OR UMBRELLA LIABILITY INSURANCE

Excess of the primary coverage required, in paragraphs above. No crane weight, jig or boom exclusion allowed.

A. Limits

1. Each Occurrence $ 1,000,000

2. General Aggregate $ 1,000,000

6.7. PROPERTY INSURANCE

Vendor will be responsible for all damage to its own property, equipment and/or materials.

7. Scope of Work

7.1. OBJECTIVE/JUSTIFICATION

Replace outdated and inefficient chilled water air handling unit that are in very poor condition. The existing units are beyond their service life and no longer dependable for the Building 100 tenant. Air Conditioning is critical to Tenant production operations and providing acceptable indoor comfort conditions for occupants.

7.2. BACKGROUND

Replace outdated and inefficient chilled water air handling unit that are in very poor condition since they are past their operational service life. The existing units are no longer dependable for the Building 100 tenant. Air Conditioning is critical to Raytheon production operations and providing acceptable indoor comfort conditions for occupants. A large crane will be required for the demolition and installation of AHU-104. The indoor units are hanging over a structural mezzanine making the removal and installation coordination critical.

7.3. REQUIREMENTS

See attached project drawings and specifications for the the project.

7.4. DELIVERABLES

Demolish three chilled water air handler units. Supply and install, Turn-key, two (2) air handler units, AHU-104, AHU-161 (combined with AHU-162). One unit is located oh the roof and the other is hanging over a structural mezzanine. All units shall be complete from factory as specified. AHU-104 shall be provided a new custom insulated curb adapter. All two (2) units shall have new Niagara/Tridium direct digital control components for complete operating systems that are tied into an existing fiber optic backbone. All units shall be fully assembled. All units shall come from the factory with all associated options, accessories and warranties. Refer to the attached plans and specifications.

8. Vendor Questionnaire

8.1. Please Upload your Step 1 Bid qualifications here.*

1. Provide a bonding letter from surety indicating the maximum amount your company can bond for.
2. Please complete and return the OpenGov Fillable-Final.
3. Provide your experience on Qualification Submittal Forms outlining projects of a similar size and scope.
4. Provide a minimum of three reference letters from companies that you have performed projects of

*Response required

8.2. Did you read through and confirm that you met all the Bid requirements and attached all required documents?*

☐ Yes

☐ No

*Response required

9. Pricing Proposal

TABLE 1

Line Item	Description	Quantity	Unit of Measure	Unit Cost	Total
1	Provide all equipment, materials, labor, and permitting to complete the replacement of three (3) Air Handling units 104, 161, and 162. Provide new direct digital controls to tie into existing controls fiber backbone.	1	LS		
TOTAL					

TABLE 2 (UNSPECIFIED WILL NOT DETERMINE BID AWARD)

Line Item	Description	Unit of Measure	Unit Cost
1	Unspecified Hourly Labor Rate for unforseen conditions	$/hr	

CONTINGENCY

Line Item	Description	Unit of Measure	Unit Cost
1	Contingency	LS	$10,000.00

10. Appendices

10.1. APPENDIX 1 - PERMITS

Florida Statute 218.80 requires the County to disclose to the Contractor which permits, and fees will have to be obtained and payable by the Contractor and the amounts of the permits.

10.2. APPENDIX 2 – SAMPLE CHANGE ORDER

Please see #Attachments for an example.

10.3. APPENDIX 3 – SAMPLE APPLICATION FOR PAYMENT

Please see #Attachments for an example.

10.4. APPENDIX 7 - SBE COMPLIANCE FORM

Please see #Attachments for SBE Compliance Form.