

Board Office Use: Legislative File Info.	
File ID Number	13-0804
Committee	Facilities
Introduction Date	5-8-2013
Enactment Number	13-0287
Enactment Date	5/8/13



OAKLAND UNIFIED  
SCHOOL DISTRICT

Memo

To Board of Education

From Tony Smith, Ph.D., Superintendent  
Timothy White, Associate Superintendent, Facilities Planning and Management

Board Meeting Date May 8, 2013

Subject Division of Facilities Planning and Management P.O's. Less than \$50,000.00

Action Requested: Ratification by the Board of Education of the attached contracts for the Division of Facilities Planning and Management.

Legistar #	Name	Amount	Funding Source	P.O.	Project	Date	City
13-0796	Apple Inc.	\$1,974.009	Measure A	P.O.	Facilities	12-4-12 thru 12-4-13	Cupertino
13-0797	Chussy International	\$620.20	Measure A	P.O.	Facilities	10-10-12 thru 11-10-12	Oakland
13-0798	Chussy International	\$350.00	Measure A	P.O.	Facilities	12-7-12 thru 12-7-12	Oakland
13-0799	Comtel Systems	\$7,784.00	County School Facilities Fund	P.O.	La Escuelita Educational Center	11-7-12 thru 3-31-13	Sunnyvale
13-0804	Dell	\$3,887.02	Measure A	P.O.	Facilities	11-29-12 thru 12-28-12	Round Rock, TX
13-0805	DFS	\$17,025.00	Developer Fee	P.O.	Facilities	12-1-12 thru 1-31-13	Foster City
13-0806	Goodman Manufacturing Corp.	\$190,100.00	Special Funding	P.O.	Stonehurst 3 Multizone HVAC Units	11-4-12 thru 1-5-13	Roseville, CA
13-0807	Graninger	\$156.71	Measure A	P.O.	Facilities	10-16-12 thru 11-15-12	San Leandro
13-0808	Humanized Productions	\$15,000.00	Measure B	P.O.	Facilities	10-1-2012 thru 6-30-13	Oakland
13-0809	Integrity Painting Company	\$12,718.00	Special Funding	P.O.	Facilities	7-13-12 thru 6-30-13	Oakland
13-0810	Marketing VUE	\$1,320.84	Special Funding	P.O.	Facilities	10-31-12 thru 11-30-12	Wayland, MA
13-0811	PG&E	\$1,500.00	Measure B	P.O.	Arroyo Viejo	10-22-12 thru 12-31-13	Sacramento
13-0812	Ricoh USA, Inc.	\$4,000.00	Measure A	P.O.	Facilities	6-30-12 thru 6-30-13	Malvern, PA
13-0813	R&S Overhead Garage Door, Inc.	\$14,124.00	County School Facilities Fund	P.O.	Oakland Tech Seismic Retrofit	10-16-12 thru 12-31-13	San Leandro



OAKLAND UNIFIED  
SCHOOL DISTRICT

13-0814	RMT Landscape Contractors, Inc.	\$25,080.00	Measure A	P.O.	Claremont Landscaping	10-16-12 thru 12-31-13	Oakland
13-0815	Syska Hennessy Group	\$6,880.00	Measure B	P.O.	Highland New Classroom	10-22-12 thru 12-31-13	San Francisco
13-0816	Syska Hennessy Group	\$3,755.00	Developer Fee	P.O.	La Escuelita Educational Center	11-15-12 thru 1-15-13	San Francisco

**Discussion:**

Among the key purposes of the District's Facilities Master Plan is to provide an academic environment for the Oakland community that will give every student, educator, and community member using our facilities the best possible opportunity for learning.

Through implementation of the Facilities Master Plan, the District intends to improve the District's facilities in terms of structural integrity, safety, reliability of operating (mechanical) systems, access to modern resources, number and type of appropriate laboratories and specialized instruction rooms, opportunities for physical education, and attractiveness, such that the Oakland Public Schools are second to none. Operation of the District schools under the planned approach is intended to ensure safety, cleanliness, and orderliness for all individuals participating in the learning process.

The basic facility needs of students such as proper lighting, functional roofs, noise control and well maintained buildings, not only convey the message that we value our students and teachers but may foster a sense of school pride and community ownership which may improve attitudes towards learning. The implementation of the Facilities Master Plan is our first step in that direction.

**Fiscal Impact:**

Various

**Recommendation:**

The Board of Education is requested to approve the Facilities Planning and Management contracts and Purchase Order for the OUSD school sites.

**OAKLAND UNIFIED SCHOOL DISTRICT**  
Department of Facilities Planning & Management

**AGREEMENT REQUEST FORM**

DATE SUBMITTED 10-16-12 SUBMITTED BY: Tadashi Nakadegawa

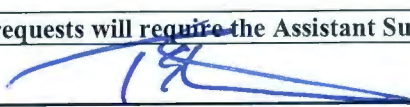

**SECTION I. TYPE OF AGREEMENT (PLEASE CHECK ONE BOX)**

1.) A&E (Architects and Engineers) Contract	<input type="checkbox"/>	5.) "Small"(under \$15,000.00) Construction Contract	<input type="checkbox"/>
2.) IOR (Inspector of Record) Contract	<input type="checkbox"/>	6.) Resolution Awarding Bid & Construction Contract	<input type="checkbox"/>
3.) Agreement for Professional Services-Testing Etc.	<input type="checkbox"/>	7.) Change Order	<input type="checkbox"/>
4.) Amendment to Agreement for Professional Services (Amendment #--)	<input checked="" type="checkbox"/>	8.) Purchase Order	<input checked="" type="checkbox"/>

Vendor Number: \_\_\_\_\_  
Fiscal Year: 2012-2013  
P.O. Under \$50K: PA  
Date Processed: 11-13-2012  
To: MB 11-13 To DR: \_\_\_\_\_

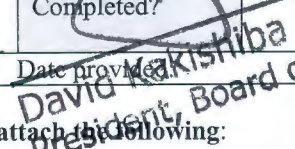
**SECTION II LOCAL BUSINESS PARTICIPATION PERCENTAGE**

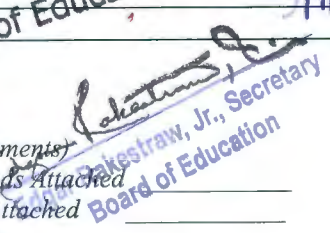
Local Business	Small Local Business	Small Local Resident Business	Total Percentage

All requests will require the Assistant Superintendent's and the Director of Facilities Authorization and Signature			
			
Timothy E. White	Date	Tadashi Nakadegawa	Date
Assistant Superintendent		Director of Facilities	<u>11/5/12</u>

**SECTION III. AGREEMENT INFORMATION:**

Project Name:	Stonehurst ES 3 Multizone HVAC Units	Project No:	<u>9189000817-6500</u>
Vendor Name:	Goodman Manufacturing Corporation	Vendor Contact:	Doude Bos
Vendor Phone Number:	916-780-9878 Tel 916-780-9818 Fax	Vendor Mailing Address:	8825 Washington Blvd Ste 400 Roseville, CA 95678
Agreement Start & Stop Dates:	Start: 11/5/2012 Stop: 01/05/2013	Amounts:	Current Contract Amount: <u>9113</u> Not to Exceed Amount: \$190,100.00 Revised Contract Amount: _____
Has Work Started?	Yes <input type="checkbox"/> No <input type="checkbox"/> If yes give an explanation: _____	Has Work Been Completed?	Yes <input type="checkbox"/> No <input type="checkbox"/>
Certificate of Insurance Attached	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date provided	<u>11/13</u>

  
David Kakishiba  
President, Board of Education

  
Robert Stakestraw, Jr., Secretary  
Board of Education

For **Construction Contracts** \$15,000, please provide or attach the following:

- |  |  |
|--|--|
| 1) Number of Bids Received, List of Bidders and Amounts (Bid Form) <i>(Attach Bid Documents)</i> | 6) Performance Bonds Attached  |
| 2) Date(s) of Bid Advertisement _____  | 7) Payment Bonds Attached _____  |
| 3) Date of Bid Opening _____   | 8) Number of Phases _____  |
| 4) Name of Architect _____   |  |
| 5) Liquidated damages per day _____  | (Sections 6 & 7 to be completed by Contract Administration department) |

**Scope of Work:** *(Needed to prepare Executive Summary)* To provide 3 Multizone HVAC replacement units at Stonehurst Elementary School.

**Discussion Information** *(Needed to prepare Executive Summary)* New units required to replace non-maintainable outdated units

**LEGISLATIVE FILE**

File ID No. 13-0906  
Introduction Date 5-8-2013  
Enactment No. 13-0787  
Enactment Date 5/8/13

Budget Number: \_\_\_\_\_

**RECEIVED**  
11-13-2013

**OAKLAND UNIFIED SCHOOL DISTRICT  
REQUEST FOR PROPOSALS  
3 MULTIZONE HVAC UNITS FOR STONEHURST ELEMENTARY SCHOOL  
RFP-AOR NO. 002-2012**

**October 5, 2012**

The Oakland Unified School District ("District") is pleased to extend to your firm an invitation to submit proposals for the opportunity to provide 3 Multizone HVAC replacement units at Stonehurst Elementary School, 10315 E ST. OAKLAND, CA 94603

Proposals are due no later than 3:00 p.m. on **Tuesday, October 23, 2012.**

Interested firms or persons are invited to submit their proposals as described below, with one (1) original and two (2) copies of requested materials to:

Mr. Tadashi Nakadegawa,  
Facilities Director  
Oakland Unified School District  
955 High Street  
Oakland, CA 94601  
**Attention: Juanita White, Coordinator**

Questions regarding the specifications in this Request for Proposals ("RFP") may be directed to: **Tadashi Nakadegawa, 510-535-7038, [tadashi.nakadegawa@ousd.k12.ca.us](mailto:tadashi.nakadegawa@ousd.k12.ca.us)**

Copies of the RFP are available online @ <http://www.ousd.k12.ca.us>, under the Department of Facilities Planning and Management, 955 High Street Oakland, CA 94601 Attn: **Juanita White, 510-535-7044.**

This RFP is neither a formal request for bids, nor an offer by the District to contract with any party responding to this RFP. The District reserves the right to reject any and all responses. The District also reserves the right to amend this RFP as necessary. All materials submitted to the District in response to this RFP shall remain property of the District.

PROPOSAL

TO THE BOARD OF EDUCATION OF THE OAKLAND UNIFIED SCHOOL DISTRICT OF ALAMEDA COUNTY. 3 MULTIZONE HVAC UNITS FOR STONEHURST ELEMENTARY SCHOOL RFP-AOR NO. 002-2012 October 5, 2012

In compliance with the call for proposals described above, the undersigned Bidder hereby proposes and agrees to furnish all labor, tools, material, transportation, services, licenses and permit fees, for the work described in attached specifications.

Bidders are required to sign the bottom line of the General Instructions / Conditions, attesting to the fact that they have read this bid and its proposal.

Total amount of bid is: Dollars (\$190,100 )

Dated: 10-29-12

Firm: Goodman Mfg., Inc.

By: [Signature] (Signature)

Doude Bos (Print/ Type Name)

Title Commercial Sales Manager

Signing Capacity

Address: 8825 Washington Blvd Suite 400 CA 95678 Roseville

Telephone: (916) 780-9878

Facsimile: (916) 780-9818

Contractor's License No.: N/A Expiration Date:

- Type of Business Entity: Individual, Sole Proprietorship, Partnership, Limited Partnership, Corporation, State: , Limited Liability Company (checked)

## GENERAL INSTRUCTIONS / CONDITIONS

1. **USE OF FORMS.** In order to preserve uniformity and to facilitate the award of contracts, no bids will be considered unless made upon forms furnished by the District. Bidders shall complete and return this form and shall complete the Bid Form and return the original copy.
2. **ANTI-DISCRIMINATION REQUIREMENTS.** It is the policy of OUSD that in connection with all work performed under Contracts there be no discrimination against any employee engaged in the work because of race, color, ancestry, national origin, religious creed, physical disability, medical condition, marital status, sexual orientation, gender, or age. By submitting its bid, each vendor herein certifies that it is in compliance with applicable Federal and California laws including, but not limited to, Title VI of the Civil Rights Act of 1964 42 U.S.C. § 2000d et seq., the California Fair Employment and Housing Act beginning with Government Code Section 12900 and Labor Code Section 1735 and OUSD policy. In addition, the vendor agrees to require like compliance by all its subcontractor(s).
3. **ACCEPTANCE OR REJECTION OF BIDS.** The Oakland Board of Education will accept the bid or combination of bids on each item the total price of which or the total combined price of which, based on the unit prices bid, equals the lowest total amount for furnishing the total quantity listed under each item. The lowest bidder must offer materials and services meeting the District's specification and be capable of delivering quality goods or services as required. In the event of equal low bids, preference shall be accorded to local firms in recognition of the greater convenience in adjustments, servicing, and repairs by merchants who are more readily available. The Oakland Board of Education reserves the right to reject any and all bids, or any or all items of any bid, or waive any irregularity or any bid.
4. **UNAVAILABILITY OF FUNDS:** Should funds not be available by the using department, the District has the option to cancel or not make an award at anytime without penalty.
5. **INSPECTION OF ITEMS FURNISHED.** All items furnished shall be subject to inspection and rejection by the District for defects or non-compliance with the specifications. The cost of inspection on deliveries which do not meet specification shall be deducted from the contract price.
6. **ASSIGNMENT PROHIBITED.** No contract awarded under this proposal shall be assigned except with the written approval of the Board of Education or its designee. Any attempted assignment in violation of the provision shall be violable at the option of the Board
7. **BRANDS.** When a particular brand or brand and number are named in connection with any item, it is named as a standard of quality and utility only. A Bidder may submit a bid to furnish an item other than that named, but the

item offered by the Bidder must state in the Bid Form the brand with its number, if any, which he will furnish. The District shall be the sole judge of whether an offered item is the equal of the named item. If the Bidder fails to write in the brand and number of the item to be furnished, it is understood the Bidder will furnish the item named by the District as the standard of quality and utility.

- 8. SALES, USE, AND FEDERAL TAXES. The total price bid by the Bidder for the furnishing of any item is the price quoted plus the State or County Sales Tax or Use Tax, if any. However, the Bidder shall state the price of the item bid upon exclusive of the amount of the sales tax or use tax.

The State or County Use Tax, on items sold to the District will be paid directly to the State Board of Equalization unless the Bidder has obtained a license from the State Board of Equalization to collect the Use Tax in which event the amount of the Use Tax on an item will be paid directly to the Bidder. Any bidder possessing such a license shall state in the following blanks the number and date of issuance thereof.

Number \_\_\_\_\_ Date of Issuance \_\_\_\_\_

Any additional state tax or any federal tax payable on an item furnished by the Bidder which may be legally added to the price bid and from the payment of which the District is not exempt, will be paid by the District.

- 10. FEDERAL OR STATE REGULATIONS. The Bidder's proposal and any contract entered into are subject to all applicable statutes of the United States or of the State and all applicable regulations and orders of the Federal or State government now in effect or which shall be in effect during the period of such contract.
- 11. PATENT RIGHTS, COPYRIGHTS, AND TRADEMARKS. The Bidder shall save, keep, bear harmless, and fully indemnify the District and any of its officers or agents from all damages, or claims for damages, costs or expenses in law or equity that may at any time arise or be set up for any infringement of the patent rights, copyright, or trademarks of any person in consequence of the use by the District, or by any of its officers or agents of items to be supplied by the Bidder.
- 12. WARRANTY-PRODUCT. Seller warrants that all articles furnished shall be free from all defects of material and workmanship, that all articles shall be fit and sufficient for the purpose intended, and shall save, keep, bear harmless and fully indemnify the Buyer and any of its officers, employees or agent from all damages, or claims for damages, costs of expenses in law or equity that may at any time arise from Buyer's normal use.
- 13. NON-COLLUSION. In accordance with California law, bidders must complete the attached Non-Collusion Affidavit and submit it with their bid.
- 14. BASIS OF AWARD: This bid will be awarded to the lowest responsive / responsible bidder, who meets all the conditions contained in this specification. The District will be the sole determinant of the winning vendor who has complied with the specifications. Bidders must have an established Processing plant and/or distribution facility.

- 15. **SERVICE:** It is essential that the high standards requested by the Oakland Unified School District in regard to this service be maintained. If in the opinion of the District, performance by the contractor is not acceptable, written notice will be given to the contractor. The contractor shall correct the problem within ten (10) working days following receipt of said notice to do so. The District will again evaluate results of performance and corrections of the contractor's service. Failure of the contractor to correct such problems specified in writing shall be deemed cause for cancellation of the contract. Written notice will be given to contractor thirty (30) days prior to the effective cancellation date, with a copy to the surety company.
- 16. **EXECUTION OF CONTRACT:** The successful bidder, shall within fifteen (15) days of written notice of award of the contract, have the bond executed by a surety satisfactory to the District, obtain copy of proof of insurance endorsements and return all the contract documents to the District Purchasing Department.
- 17. **INSURANCE:** The successful bidder shall maintain insurance adequate to protect the District from claims for damages for bodily injury, including death, and damage to property, which may arise from operations under the contract and/or product liability. The successful bidder shall be required to file with the District, endorsements and certificates of proof of such insurance. Failure to furnish such evidence may be considered default of the contractor. Performance under this contract shall not commence until such proof has been filed with the Facilities Department.

The vendor may file his insurance policies on a yearly basis subject to all of the conditions contained herein.

**INSURANCE ENDORSEMENTS: THE FOLLOWING MUST BE INCLUDED ON A SEPARATE ENDORSEMENT, FROM EACH OF THE INSURANCE COMPANIES THAT PROVIDE COVERAGE:**

- A. Policies are to provide for 30-day written notice of cancellation to the Oakland Unified School District.
- B. The Oakland Unified School District, its Board, officers, agents, and employees are to be named additional insured with respect to any liability arising out of performance of said contract.
- C. Said Policy shall operate as primary and no other insurance effected by the District will be called upon to cover a loss incurred by said Policy or Policies.

The successful bidder shall be required to file with the District certificates and endorsements of such insurance stating coverage for at least or minimum amounts during the life of any resultant contract:

Bodily injury ..... \$250,000.00 for injury to any one person / \$1,000,000.00  
 ..... for any one accident  
 Property damage..... \$100,000.00 for any one accident

- 18. **CONTRACTOR NOT OFFICER, EMPLOYEE OR AGENT OF DISTRICT:**



While engaged in carrying out and complying with the terms and conditions of the contract, the contractor is an independent contractor and not an officer, employee, or agent of the Oakland Unified School District.

19. FINGERPRINTING AND CRIMINAL RECORDS CHECK OF CONTRACTOR'S EMPLOYEES:

Contractor shall comply with the provisions of Education Code section 45125.1 regarding the submission of employee fingerprints to the California Department of Justice and the completion of criminal background investigations of its employees. Contractor shall not permit any employees to have any contact with District pupils until such time as Contractor has verified in writing to the governing board of the District, that such employee has not been convicted of a felony, as defined in Education Code section 45125.1. Contractor's responsibility shall extend to all employees, subcontractors, and employees of subcontractors regardless of whether such individuals are paid or unpaid, concurrently employed by the District, or acting as independent contractors of the Contractor. Verification of compliance with the section shall be provided in writing to the District prior to each individual's commencements of employment or participation in the project and prior to permitting contact with pupils. In accordance with California law, Bidders must complete the attached Fingerprinting / Criminal Background Check certification and submit it with their bid.

It is understood that the bidder has fully read, and understands, the terms and conditions governing the transaction and agrees to abide by them. Bidders are required to attest to the fact that they have read this bid in all its entirety by signing below:

Signature of Vendor's Representative: \_\_\_\_\_ Date: \_\_\_\_\_

\_\_\_\_\_

State of California )  
 ) ss.  
County of \_\_\_\_\_ )

\_\_\_\_\_, being first duly sworn, deposes and

(Name of Contractor)

says that he or she is \_\_\_\_\_ of  
(Position in Company)

\_\_\_\_\_  
(Company)

the party making the foregoing proposal is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the proposal is genuine and not collusive or sham; that the proposer has not directly or indirectly induced or solicited any other proposer to put in a false or sham proposal, and has not directly or indirectly colluded, conspired, connived, or agreed with any proposer or anyone else to put in a sham proposal, or that anyone shall refrain from proposing; that the proposer has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the proposal price of the proposer or any other proposer, or to fix any overhead, profit, or cost element of the proposal price, or of that of any other proposer, or to secure any advantage against the public body awarding the **contract** of anyone interested in the proposed **contract**; that all statements contained in the proposal are true; and, further, that the proposer has not, directly or indirectly, submitted his or her proposal price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, depository, or to any member or agent thereof to effectuate a collusive or sham proposal.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

\_\_\_\_\_  
(Proposer)

Subscribed and sworn to before me this \_\_\_\_ day of \_\_\_\_\_, 2012. Notary Public in and for the County of \_\_\_\_\_.

SEAL

*certifies that CONTRACTOR has complied with the fingerprinting and criminal background investigation requirements of Education Code section 45125.1 with respect to all CONTRACTOR's employees, subcontractors, agents, and subcontractors' employees or agents ("Employees") regardless of whether those Employees are paid or unpaid, concurrently employed by OUSD, or acting as independent contractors of CONTRACTOR, who may have contact with OUSD pupils in the course of providing services pursuant to the Agreement, and the California Department of Justice has determined that none of those Employees has been convicted of a felony, as that term is defined in Education Code section 45122. 1. A complete and accurate list of all Employees who may come in contact with OUSD pupils during the course and scope of the Agreement is attached*

**PART 1 - GENERAL**

**1.01 CONDITIONS OF THE CONTRACT:**

- A. The Conditions of this Contract (General, Supplementary, and other Conditions) and the General Requirements (Sections of Division 1) are hereby made a part of this Section.
- B. Division-15 Basic Mechanical Materials and Methods sections apply to work of this section.

**1.02 WORK INCLUDED:**

- A. Types of Multizone Units required for project include the following:
  - Modular-Split System - Penthouse
- B. **MANUFACTURER:** Subject to compliance with requirements, provide multizone units of the following manufacturer or equal:
  - Custom Mechanical Equipment, Inc through Lennox Industries, Inc.**

**1.03 QUALITY ASSURANCE:**

- A. **FLAME-SMOKE RATINGS:** Except as otherwise indicated, provide thermal insulation with flame-spread index of 25 or less, fuel-contributed index of 50 or less, and smoke-developed index of 50 or less.
- B. **AMCA STANDARDS:** Comply with Air Movement and Control Association (AMCA) Standards as applicable to testing and rating fans.
- C. **SMACNA COMPLIANCE:** Comply with Sheet metal and Air-Conditioning Contractors National Association (SMACNA) ductwork construction standards as applicable to multizone units.
- D. **ETL, AGA, & UL COMPLIANCE:** Provide electric components for multizone units which have been listed and labeled by Underwriters Laboratories or by a testing organization of equal standing.

- E. **ENERGY STAR LABEL:** Provide written confirmation of listing of all furnaces in the "Director of Certified Gas Fan-Type Central Furnaces", and furnaces must have the Energy Star® label.

**1.04 SUBMITTALS:**

- A. **PRODUCT DATA:** Submit manufacturer's specifications for multizone units showing dimensions, weight, capacities, ratings, certified fan performance with operating point clearly indicated, motor electrical characteristics, gauges and finishes of materials, and installation instructions.
- B. **MAINTENANCE DATA:** Submit maintenance instructions, including lubrication instructions, filter replacement, motor and drive replacement, and spare parts lists. Include this data in maintenance manuals only.

**PART 2 - MATERIALS**

**2.01 SPLIT SYSTEM HVAC UNITS:**

- A. **GENERAL:** Furnish and install multizone systems, complete with automatic controls. The units shall be a standard product of a firm regularly engaged in the manufacture of heating/cooling equipment. The equipment shall be shipped completely factory tested and internally ready for field connections. Provide thermal overload protected motors.
  - 1. All wiring shall be in compliance with NEC.
- B. **HEATING/COOLING SYSTEM:** The total certified heating/cooling capacity shall not be less than scheduled. The compressor power input shall not exceed that of the unit specified.

- C. **SPECIFIED EQUIPMENT:** Approved equipment must include multiple independent heating, cooling, fan and economizer sections to provide system redundancy, improve reliability, increase system efficiency, and reduce energy usage. Equipment that requires reheat will not be acceptable. Any manufacturer not meeting these specifications must provide a detailed explanation of the deviation(s) from the specifications and all performance information necessary for the owner to complete a comparative life cycle cost analysis. **The Owner reserves the right to reject any bids not meeting all specifications.**
- D. **TECHNICAL SPECIFICATIONS:** The gas fired multizone units shall be factory assembled one-piece penthouse design and be listed by ETL as an approved HVAC appliance. The following components shall be factory installed, wired and plumbed inside the penthouse:
- High efficiency heating section (minimum 95% AFUE)
  - Evaporator coils
  - Fully modulating economizer dampers
  - Low voltage control center
  - Line and low voltage wiring in the penthouse
  - Gas lines with single point exterior connection
  - Condensate piping to single point interior connection
  - Refrigerant piping to exterior of penthouse
  - Combustion intake and exhaust piping to termination point
  - Supply air zone head matching existing ductwork
  - Interior lights and ground fault convenience outlet
  - 30% efficient 2" pleated filters
  - Barometric pressure relief dampers
  - Condenser rails for mounting condensers
  - Main exterior electrical disconnect switch
  - Step-down transformers
  - Phase Protection
  - Opened protocol DDC Controller

- E. STRUCTURE AND INSTALLED COMPONENTS:** Penthouse shall be constructed of coated, high ribbed galvanized steel siding and trim with R-9 insulation. Standard color is burnished slate. All louvers shall be coated to match the penthouse with integral bird screen. Unit base shall be designed to set on existing roof curbs and use existing ducts without the need for any transition curb or ducts. Lifting lugs shall be provided for rigging.
- F. SERVICE ACCESS:** All components, wiring, and inspection areas shall be completely accessible through removable panels or doors.
- G. HEATING:** Each heating section shall be high efficiency (95% AFUE), aluminized steel heat exchanger with sealed combustion, condensing type utilizing 100% outside air for combustion. Units shall be certified by AGA Laboratories and the ratings certified by GMA and tested according to DOE test procedures and FC labeling regulations. Heating of air cooled by mechanical means or through an economizer will not be allowed.
- H. SUPPLY AIR FAN:** An independent, 1 Hp fan section is required for each heating section. Each blower assembly shall be statically and dynamically balanced. Maximum speed is 1800 RPM. Blower speed shall be reduced a minimum of one third of the design rotational speed to lower energy costs and reduce drafts when space conditions allow. High and low speed fan settings must be manually adjustable through a simple procedure. Change in blower speed must be gradual utilizing a VSM (DC) motor or Variable Frequency Direct Drive. Control sequence and equipment must be pre-approved by the Owner. Belt-driven fans shall not be acceptable. The entire assembly shall be resiliently rubber mounted.
- I. COOLING:** An independent, direct expansion cooling system shall be provided for each heating section. Evaporator coils shall be made with seamless copper tubing, aluminum fins mechanically bonded to durable copper tubes, and galvanized steel frame. Balanced port, adjustable thermal expansion valves shall be factory-installed. Refrigerant shall be R-410a. Each coil shall be thoroughly tested under high pressure and charged with nitrogen prior to shipment to further assure leak-proof construction.

An independent air-cooled condensing unit shall be provided for each cooling coil. Units shall be set directly on the roof or on the existing roof curb using devices provided by the manufacturer. Condenser fan shall be TEFC, permanently lubricated direct drive motor with vertical discharge, rain shield and PVC coated steel wire fan guard. Backseating brass service valves shall provide access to refrigerant system. Field installed piping shall be as required by the manufacturer.

Condenser coil is to be factory tested to insure leak-proof construction. Entire coil shall be accessible for cleaning. Refrigerant compressor shall be a Copeland Compliant Scroll. Unit shall be rated for a minimum 11.0 EER at ARI conditions with the evaporator coil and condenser section provided.

The compressor shall be resiliently mounted, have built-in crankshaft lubrication, crankcase heater, discharge temperature limited, and current- and temperature- sensing motor overloads.

The system shall be protected by high and low pressure switches and a five-minute compressor timed off cycle controller (anti-recycle timer).

**Unit Casings:** Design for outdoor installation and provide weather protection for components and controls.

- J. ECONOMIZERS:** An independent economizer section shall be provided for each heating section. Units shall be fully modulating with enthalpy or dry-bulb changeover and a manually adjustable minimum damper position. Outdoor air intake damper leakage shall not exceed three cfm/sq. ft. at 3" static pressure differential across the damper.
- K. FILTERS:** Sufficient surface area on 2" pleated, 30% efficient filters shall be provided (Farr 30/30 or equivalent). Filter replacement shall be made without the use of any tools. All air shall pass through these filters prior to entering any fan, coil or heat exchanger.

**L. UNIT CONTROL – DDC CONTROLLER SPECIFICATION:** The controller used shall be 32-bit microprocessor based and graphically programmable to control each unit with 96 input/output (I/O) points:

- Up to 48 universal inputs (individually jumper-selectable to select either a dry contact, thermistor, 0-20 mA, 0-5 VDC, 0-10 VDC, or RTD...with 12-bit resolution on all analog inputs)
- Up to 24 digital outputs (relayed outputs with individual LED indication and individual HOA switches)
- Up to 24 analog outputs (0-10 VDC or 0-20 mA)

Capacity requirements greater than 96 I/O's can be added as an option. The maximum number of inputs and outputs the controller can accept is 192 (92 universal inputs, 48 digital outputs and 48 analog outputs).

The controller must be capable of sensing CO<sub>2</sub> levels by zone and modulating the fresh air by zone to established levels.

There shall be no limits on the number of control loops that the controller can handle nor any programming limitations imposed. The controller shall have an on-board, jumper-selectable EIA-232 or EIA-485 open protocol port that supports the following communication protocols: BACnet (modes supported: MS/TP, PTP, and ARCnet), Modbus (modes supported: RTU and ASCII), N2 Bus, and LonWorks. If a controller does not support all of these protocols, then the equipment manufacturer shall include and provide in their price all of the necessary additional communication gateway(s) to support all of these protocols.



All programming memory shall be stored in Flash memory (512-KB minimum), thus requiring no battery-backup and providing for rugged electrical noise immunity. The controller shall contain an on-board battery-backed (up to 10,000 hours) hardware clock for stand-alone scheduling capability and accurate recording of date/time on alarm events and data logging. The time/date maintained by the hardware clock shall automatically adjust for daylight savings time and leap years.

As simple-to-use keypad/display (KPD) unit with a minimum 4 line by 40 characters per line backlit LCD with 22 function buttons will be supplied with each unit. Software and hardware features of the KPD shall include:

- Custom definable displays and menus
- Alarm indicator light and horn as well as an acknowledge (or "mute") button. The alarm light shall be active anytime there is an active alarm, and the alarm horn shall be active anytime there is an active, unacknowledged alarm. It shall be software selectable which individual alarm conditions, if any, that activate the horn.
- Alarm history buffer displaying the 64 most recent alarms, including custom alarm text and time stamping of time of alarm occurrence and time when the alarm condition returned-to-normal
- User password protection for KPD editing access as well as separate technician password protection
- View and adjustment of operating schedules – normal, holiday, and override schedule modes
- Ability to connect or disconnect the KPD "on-the-fly" without the need to cycle power to the controller for the KPD to be fully functional.
- Option to mount the KPD component itself up to 1,500 feet away from the unit
- Ability to reset the controller's time/date
- Ability to field-adjust through the KPD which protocol the controller communicates through its open protocol port as well as the ability to adjust certain protocol parameters (such as baud rate, stop bits, parity, protocol mode, etc.)

- M. DUCT SYSTEM:** Unit shall have factory-installed internal duct system. Individual zone heads shall be sized and located for connection to the existing zone systems. The return air opening shall include a protective grate. Zone balance dampers and pitot tube ports shall be provided to allow aggregate balancing of each zone on the building roof. Sub-zone control dampers actuators shall be easily accessible through external access panels without removing any screws, bolts, etc.
- N. ELECTRICAL:** 208/230 volt, three phase with main over current protection device and branch circuit breakers shall be provided in each unit. Condensing unit disconnect switches shall be mounted on the exterior of the penthouse adjacent to the respective condensing units. A main electrical disconnect switch shall be factory mounted on each unit. Unit shall include a factory-installed power quality monitor to disable unit during phase loss, high voltage or voltage conditions.
- O. WARRANTIES:** The unit shall include the following manufacturer's part warranties with no labor allowance unless noted:
- A. Heat exchangers shall have a ten-year limited warranty with 50 °F minimum inlet air.
  - B. Solid-state ignition modules shall have a one-year limited warranty.
  - C. Blower motors shall have a limited one-year warranty.
  - D. The compressor shall have a limited five-year warranty.
  - E. All other covered components shall have a limited one-year warranty.
- P. EQUIPMENT MANUFACTURER REQUIREMENTS:**
- A. Inspect existing equipment and site prior to construction
  - B. Complete system design to match equipment with building requirements.
  - C. Provide customized submittal data matching job requirements.
  - D. Fabricate all equipment in accordance with job schedule.
  - E. Control equipment delivery to meet schedule requirements.
  - F. Provide a project manager to supervise the installation.
  - G. Start-up equipment with the assistance of the installation

- H. Complete detailed training of system operation, maintenance and trouble-shooting for the owner.
- I. Provide 4 copies of Operating and Maintenance instructions, including color-coded unit wiring diagrams showing actual wiring colors.

### **PART 3 - EXECUTION**

#### **3.01 INSPECTION:**

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

#### **3.02 INSTALLATION OF MULTIZONE UNITS:**

- A. Install multizone units where indicated, in accordance with equipment manufacturer's instructions with unsatisfactory conditions corrected.

#### **3.03 TESTING:**

- A. Upon completion of installation of multizone units, start up and operate equipment to demonstrate capability and compliance with requirements. Field correct malfunctioning units, then retest to demonstrate compliance.

#### **3.04 CLEANING UP:**

- A. Upon completion of work, remove materials, equipment, apparatus, tools, and the like, and leave premises clean, neat, and orderly.

**END OF SECTION**