

**KING COUNTY HOUSING AUTHORITY
REQUEST FOR PROPOSALS
WEATHERIZATION REPAIR PROJECTS**

**ADDENDUM #1
ANDREW'S HEIGHTS APARTMENTS
MECHANICAL AND ELECTRICAL WORK**

Effective 4/24/2023 , this Addendum #1 shall be considered part of the Request for Proposal Documents.

Correction to Exhibit D

Included within this Addendum:

- Corrected Technical Specifications – the incorrect specifications were included with this bid package. The correct specifications have been corrected in the bid document and included in this addenda.

EXHIBIT D MECHANICAL SPECIFICATIONS

1. WORK SCOPE SUMMARY

- A. Install twenty-six (26), 1-ton capacity split-system ductless heat pumps (DHPs) with wall-mounted indoor head units. Existing in-wall heaters and associated thermostats are to be removed and drywall patched and painted in these locations.
- B. Install twenty-six (26), wireless, wall-mounted DHP thermostats.
- C. Install twenty-four (26), quick disconnects with built in service outlets.
- D. Install fourteen (14) ERV's in the attic above the hallway, ducted with supply vents in the bedrooms exhaust vents in the hallway.
- E. Install twelve (12), through wall ERV's in the main living space of the units.
- F. Install forty-five (45) Humidistat controls for the bathroom fans

Alternate #1

- (i) Install twenty-six (26), through wall heat pumps with built in ERV and exterior louvers. Existing in-wall heaters and associated thermostats are to be removed and drywall patched and painted in these locations.
- (ii) Install forty-five (45) Humidistat controls for the bathroom fans

2. GENERAL REQUIREMENTS

- A. Schedule –A project schedule must be developed prior to the start of construction and weekly meetings will be held to monitor progress against the schedule.
- B. Invoices – The firm will be required to invoice for work on a building by building basis rather than requesting payment based on a schedule of values. That means this project consisting of one building must have work completed and pass any inspection from KCHA as well as the authority having jurisdiction for the work completed.
- C. Training – The Firm shall be responsible for the technical competence and qualifications of his or her salespeople, installers, and service technicians. At least one technician working on the job site must have received certified installation training from the manufacturer of the installed DHP equipment and be certified as a Type II technician as required by 40 CFR Part 82, Subpart F.
- D. Electrical – All electrical connections and repairs are to be performed by individuals who, working for a licensed electrical contractor, have received appropriate electrician certifications from the Washington State Department of Labor and Industries (L&I). Electrical repairs are to be conducted under the supervision of an electrical administrator.

- L&I provides both electrician and administrator certifications for various levels of electrical work. The Firm is responsible for obtaining required certifications and licensing for self-performance of electrical repairs or for subcontracting electrical repairs to a properly licensed electrical contractor.
- E. Instruction – The Firm shall arrange for the manufacturer to instruct maintenance staff in proper operation and maintenance of the DHP systems, demonstrate filter replacement/cleaning and demonstrate the operation of indoor DHP thermostat controls and indicator lights. The Firm shall provide the Weatherization Department with the manufacturer's owner's manual. The manufacturers shall explain to the building owner the different operating modes of the ERV and heat pump system (e.g. heating, cooling, defrost). All this information shall be provided by KCHA in the owner's manual given to the building owner.
 - F. Code Compliance – The Firm shall pursue compliance with federal, state, and local building and environmental codes for the installation of this product. Follow manufacturer's installation instructions and specifications. The following specifications are not intended to replace manufacturer's specifications.
 - G. Permits – The Firm shall be responsible for all permits required by State and local ordinances for the installation of the heat pump system and mechanical work. The Firm shall provide the building owner and KCHA with copies of all permits related to the work.

3. NEW EQUIPMENT REQUIREMENTS

A. Single Head Split-System Ductless Heat Pumps (DHPs):

- i. Equipment shall have an inverter-driven, variable-speed compressor, a variable-speed outdoor fan, and a multi-speed or variable-speed indoor blower unit.
- ii. Equipment shall be manufactured by a company listed in the Air Conditioning, Heating and Refrigeration Institute (AHRI) Unitary Directory. Acceptable quality level: **Mitsubishi indoor unit MSZ-GL12NA-U1 and outdoor unit MUZ-GE12NA-U1**, or approved equal. Approved equal must have a minimum rated capacity of 12,000 BTU/hr cooling capacity, and 14,000 BTU/hr heating capacity at 47° F.
- iii. Equipment shall be from a manufacturer with a significant market presence, inventory and parts distribution centers located in the Pacific Northwest.

- iv. Warranty – Heat pump equipment shall be warranted by the manufacturer against defects in labor for one year, the DHP parts for a minimum of five years from the date of start-up of the equipment. In addition, the compressor shall be warranted by the manufacturer against defects in material and workmanship for a minimum of seven years from the date of start-up. This warranty should not be considered to cover equipment failure caused by failure to perform normal maintenance, abuse or external causes beyond the control of the Firm. A Statement of Warranty must accompany your invoice and must be provided to the building owner.
 - v. Heat pump equipment shall meet the performance, safety, and rating requirements as given in the latest revision of AHRI Standard 240. Units shall be listed by Underwriters' Laboratories or equivalent and shall display the AHRI symbol of certification. The DHP equipment shall be listed by model number on the most current Bonneville Power Administration's Qualified Products List. Last accessed from <http://www.bpa.gov/EE/Sectors/Residential/Pages/Ductless-Heat-Pumps.aspx> on October 2, 2015. The ductless heat pump equipment shall be rated with an HSPF of 10 or greater.
 - vi. DHP indoor units shall come with air filters installed from the factory.
 - vii. DHP line Hides shall be weather resistant, and UV stabilized.
 - viii. DHP field-supplied refrigerant piping shall be clean, dehydrated, sealed and seamless copper tubing or the manufacturer's pre-charged tubing.
 - ix. Seven (7) extra interior filters shall be supplied to the property management/maintenance staff.
- B. Wireless Wall-Mounted Thermostats: Thermostats shall be capable of programming upper and lower temperatures in heating and cooling modes, limiting full functionality of the DHP, and allow for daily and weekly program schedules. Acceptable quality level: **Mitsubishi MHK2 remote controller** or approved equal
- C. Quick disconnects with built in service outlets: Must meet current code of the authority having jurisdiction and have the service outlet part of the quick disconnect.
- D. Ducted Energy Recovery Ventilators: Minimum characteristics: 120V, 60 Hz, DC or ECM motor-driven, selectable supply and exhaust flow rates up to 100 CFM, selectable min/hr run-time, Energy Star Rated, HVI Certified. Acceptable quality level: **Panasonic FV-10VE1** or approved equal.

- E. Through wall ERV's: Minimum characteristics: Able to move up 59 cfm at under 1 Sone and up to 96% Heat Recovery Efficiency, uses low energy EC Fans and has MERV8 air intake filter and a MERV14 supply air filter. Acceptable quality level: **VentsUS Freshbox 100 WiFi ERV** or approved equal.
- F. Bath Fan Humidistat Switch: 120V, 60Hz humidistat switch with integrated adjustable automatic run programming. **WhisperControl FV-WCCS1-(W/A) or approved equal.** Face plates and new switches to match color of existing devices in installation location.

Alternate #1:

- A. Through wall heat pump with ERV: The equipment shall have a high performance heat exchanger, high efficiency EC fans with a brushless DC motor, and a BLDC inverter that has a DC motor. **AIO VERTICAL STACK WITH ERV MODULE AVP102H3R or approved equal with Sunvent LLA/F or approved equal**
- B. Bath Fan Humidistat Switch: 120V, 60Hz humidistat switch with integrated adjustable automatic run programming. **Panasonic WhisperControl FV-WCCS1-(W/A) or approved equal.** Face plates and new switches to match color of existing devices in installation location.

4. Installation Requirements

A. Split-System Ductless Heat Pumps (DHPs)

- i. General placements of indoor and outdoor units will be reviewed at the bid walkthrough. After identification of a winning bidder an additional site visit to develop a more detailed plan on an apartment-by-apartment basis will need to be scheduled. Final locations for outdoor units, line-sets and indoor head placement are required for the following:
 - 1) Location of the outdoor unit, and any landscaping that may need to be relocated.
 - 2) Placement of line-set penetrations to connect to the indoor head unit.
 - 3) Placement of electrical penetrations and service disconnects.
- ii. Access – Equipment shall be installed and plumbed to allow easy service access and adequate working space for servicing any component without removal of piping or other permanently installed fixtures. Components that require frequent attention, such as filters, shall be located in easily accessible areas.
- iii. Electric Wiring – All field wiring, line and low voltage, shall comply with the manufacturer's recommendations, the National Electrical Code and all applicable local codes and ordinances.

- iv. DHP indoor units shall be located in the main living area on the wall and located for best air circulation. Interior units shall be installed level and located high on the wall per manufacturer's instructions.
- v. Outdoor units shall be mounted on exterior walls at a maximum height of eight feet from the ground to for servicing. The mounting, location, height, and position of the outdoor units shall be as consistent as possible throughout the property. The outdoor units shall be mounted on model-specific brackets equipped with vibration dampers, secured to strut channel. The strut channel should be properly secured through the cladding to structural framing members of the wall (studs). Silicon or an approved sealant must be used where fasteners penetrate the cladding to maintain a weathertight assembly. Units also can be installed on the appropriate pad after dirt work to level the ground has been completed. The service disconnect shall be mounted in a consistent location adjacent to the outdoor unit, and firmly secured to the building exterior, with fastener penetrations being sealed with silicone sealant.
Outdoor units shall be located to avoid restrictions in the outdoor airstream, and per the location layout at the end of this specification. Defrost melt shall not drain onto areas where ice formation may create a hazard (walkways etc.). Outdoor units must be installed level.
- vi. Refrigerant Tubing shall be installed to manufacturer's specifications. To maintain oil return to the compressor and avoid inefficiency and capacity loss, refrigeration piping or refrigeration line set shall be sized and installed in accordance with the manufacturer's instructions and recommendations. Piping between the two sections of split units shall not exceed the manufacturer's maximum recommended length, horizontally or vertically, and shall be run parallel to building lines and in a straight and workmanlike manner to prevent oil traps.
- vii. Refrigerant Charge – Technician shall follow manufacturer's guidelines when charging a new system and make any needed adjustments for non-standard line set lengths using a programmable refrigerant charging scale.
- viii. Electric Wiring – Wiring shall be encased in commercial grade flexible metal conduit. Acceptable conduit: Anaconda Sealite, type UA, liquid tight flexible metal conduit, or approved equal. All field wiring, line and low voltage, shall comply with the manufacturer's recommendations, the National Electrical Code and all applicable local codes and ordinances. Special care shall be taken to assure communication between indoor and outdoor units is not compromised.
- ix. All interior wiring shall run inside the line hide, or inside the wall.
- x. Exterior Line hides are allowed in this installation, but outdoor units are located to minimize line hides.
- xi. Support – Refrigerant piping shall be properly supported in accordance with manufacturer's specifications, AHRI and IMC (International Mechanical Code).

- xii. Condensate Drain – Line shall slope downhill to allow for gravity flow of condensate into Firm provided condensate drain lines that terminate on Firm provided splash blocks. Condensate lines shall not be placed in existing downspouts. Splash blocks shall be made of concrete and placed to drain away from the building. Ground below the splash block shall be prepared, if necessary, for long term service of the drainage.
- xiii. DHP Penetrations – Refrigerant piping and electrical runs passing through openings in the exterior of the building structure shall be installed on cedar mounting blocks, and properly flashed to maintain a weathertight assembly. All penetrations in the envelope of the building shall be as small as possible, with no more than ¼” gap around the piping, and properly sealed with an isolative sealant. Penetration must be made through blocking that is placed in coordination with the capital construction envelope upgrade.
- xiv. DHP Insulation – Refrigerant lines shall be insulated with a minimum of ½” thick continuous closed-cell foam rubber. Insulation must cover entire line set length. Where refrigeration line sets run on the exterior of the buildings they shall have a rigid line hide weatherproof covering.
- xv. DHP Leak Testing, Evacuation and Charging – Factory as well as field-fabricated joints shall be checked, and any leaks found shall be repaired. Evacuation and charging shall be done in accordance with the manufacturer’s instructions and recommendations.
- xvi. DHP Line Hides shall be installed per manufacturer’s instructions including:
 - 1) Perfectly vertical and nearly horizontal runs that adhere to 90 degree turn
 - 2) Include covers and base.
 - 3) Cut with hacksaw and filed to smooth edges.
 - 4) Include saddle bands
 - 5) Secured with stainless steel screws.
- xvii. DHP System Check Sheet – It is mandatory that the installer fill out a ductless heat pump system check sheet for each ductless heat pump that is installed. The manufactures sheet is acceptable.

B. Wireless Wall-Mounted DHP Thermostats: Thermostats are to be mechanically secured to the wall with fasteners, per manufacturer’s instructions at a height of 60 inches, with the exception of handicap assessable units where the height should be 48 inches. They shall be programmed to King County Housing Authority’s determined set points and limits in order to be considered completed. Tamper proof covers required in common areas.

B. Ducted Energy Recovery Ventilators (ERVs)

- i. New ducted ERVs are to be installed in the unit hallway with supplies ducted to the bedrooms and exhaust coming from the main living area. Ducted ERVs are to be located near the attic access hatch in the hallway for ease of maintenance , and

must be vented to the exterior with independent supply and exhaust ports with a minimum of 3' of separation between the supply and exhaust wall caps, unless the manufacturer builds a combo cap that is acceptable by the authority having jurisdiction. Keep supply cap a proper distance roof shingles as required by code.

- ii. Installation provisions must follow manufacture specifications and meet the requirements of the authority having jurisdiction.

- C. Through Wall Energy Recovery Ventilation Units: Shall be installed in the living room in the same wall cavity as an electrical power source. A factory plate or mounting board will need to be installed on the studs and the ERV mounted to the plate or mounting board. Power is to be run inside the wall cavity and get power from an existing outlet or the electrical panel. Remotes for the units will be saved and given to the building owner. Blocking for the cedar siding must be installed on the exterior wall properly flashed and the factory wall cap must be used. Electric Wiring – All field wiring, line and low voltage, shall comply with the manufacturer's recommendations, the National Electrical Code and all applicable local codes and ordinances, including making the circuit that the ERV is installed on an arc fault circuit.
- D. Bath Fan Humidistat Switch: Install according to manufactures recommendations and in accordance with codes by the authority having jurisdiction, a switch leg may need to be added to make the fan function correctly with the Panasonic bathroom fans so that they will function in continuous run mode with boost for humidity or manual control. Face plates and light switches to match color with humidistat switch.

Alternate #1:

- A. Through wall heat pump with ERV: AIO Vertical Stack Product shall be installed to manufactures recommendations, and to meet all applicable codes for the authority having jurisdiction. A quick recap of installation notes from the follows, but the installation manual for the product must be followed and product must be certified in accordance with the manufacturer:
- The power supply circuit is installed in accordance with the current edition of NEC (ANSI/NFPA 70) and local codes and ordinances. Note: Always consult local and national electric codes. Voltage rating of 60 Hz, 208V/230V single phase.
 - Properly installed insulated condensate drain line with a minimum of 30% slope if an external drain. If using an external drain on a low floor, ensure that end of drain is above the maximum height of snow buildup. An internal drain is highly recommended.

- Interior clearances are only required to prevent vibrations. If placing a door in the front of the unit, leave at least .25” of clearance. All others clearances are only dependent on ducting.
 - Approved louvers installed with best practices to ensure no water into the wall assembly.
 - Correctly sized ductwork, installed properly and balanced.
 - The unit must be perfectly level on the vertical and horizontal axis.
 - The unit must be tight to ducts, with zero leakage between the external ducts and the unit.
 - Properly affixed screws to wall studs or other supporting material.
 - Unblocked vents on the exterior and no obstacles within 36”.
- B. Bath Fan Humidistat Switch: Install according to manufactures recommendations and in accordance with codes by the authority having jurisdiction, a switch leg may need to be added to make the fan function correctly with the Panasonic bathroom fans so that they will function in continuous run mode with boost for humidity or manual control. Face plates and light switches to match color with humidistat switch.

5. EXISTING EQUIPMENT

- A. All dwelling units are currently heated electrically with in-wall heaters. The primary heat source and corresponding thermostat in the location of the installed DHP or AIO Vertical Stack is to be disabled and removed. Power for the ductless heat pump can be pulled from this heat source or thermostat. If there are other heat sources in the main living area, such as the kitchen, laundry or bathroom, they are to remain operational as long as they have their own thermostat. Drywall must be patched and painted to a finished condition.
- B. Safe Work Practices – Andrew’s Heights was built in 1995, and is assumed to not have any lead base paint.

6. WORK PRACTICES

- A. The Firm shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work in accordance with best industry practices and applicable local, state and federal law, including without limitation regulations of the Secretary of Labor at 29 CFR Parts 1904 and 1926. For Statement of Work Items in excess of \$100,000, the Firm shall comply with the Contract Work Hours and Safety Standards Act, 40 U.S.C. §3701 et seq. The Firm shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury or loss to (a) all workers and other persons on the work site, (b) all of the work,

- materials and equipment to be used or incorporated therein, and (c) all other property at the work site or adjacent thereto.
- B. The work is occurring in occupied residential units. The Firm shall coordinate all work with the property management team and in compliance with Washington State law for entry to an apartment. Employees of the firm working in occupied units are expected to be respectful and to minimize disturbance to the resident.
 - C. The Firm shall notify KCHA of each building completion and arrange for an inspection of all completed work and be present during the inspection. All work shall be subject to review and approval. KCHA shall inform the Firm where it finds work to be unsatisfactory. The Firm shall correct unsatisfactory work within ten business days, and shall notify KCHA for a follow-up inspection.
 - D. The Firm shall be responsible for all acts and omissions of the Firm's agents and employees and for the acts and omissions of subcontractors and their agents and employees.
 - E. The Firm shall keep the work site free at all times from accumulations of waste materials or rubbish resulting from the work. The firm shall clean the project site and work areas daily, including common areas and coordinate progress cleanings for joint-use areas where more than one installer has worked. At completion of the work, the Firm shall remove all waste materials and rubbish, tools, materials and equipment, and surplus materials from the work site, and leave the work site as clean as or cleaner than when the work began. All debris resulting from the work will be removed and legally disposed of with every effort made toward recycling waste material.
 - F. The firm shall adequately protect the building, paved areas, service drives, lawn, shrubs, trees, etc. from damage while performing the required work. The firm shall repair or be responsible for costs to repair any and all property damaged by the firm during the mechanical installation.
 - G. Siding penetrations will be done on an approved method, with blocking made for the siding where available. Damaged siding is the responsibility of the contractor to replace and it shall be replaced with matching siding.
 - H. Ceiling and wall patches: patch the ceilings, walls and any other areas where sheetrock repair is necessary as part of this installation. Restore surfaces to pre-construction condition and match adjoining texture or finish in a manner that will eliminate evidence of patching and refinishing. Paint will be supplied by the property manager or property maintenance staff.

7. DAMAGES

- A. The Firm will be held responsible for any and all damages created during the performance of the work.
- B. All debris resulting from the work will be removed and legally disposed of with every effort made toward recycling waste material.