



WEATHERIZATION DEPARTMENT
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INVITATION FOR BID
Mechanical and Electrical
at
Brittany Park Apartments

Invitation for Bid Issued: 6/10/2026
Pre-Bid Meeting: 6/17/2026 at 11:00 am
Bid Due: 6/30/2026 at 2:00 pm

This Invitation for Bid includes the following documents:

- 1. Invitation for Bid Document**
- 2. Exhibit A – General Conditions**
- 3. Exhibit B – Bidder's Information Sheet – Required Submission**
- 4. Exhibit C – Form of Proposal – Required Submittal**
- 5. Exhibit D – Mechanical Specifications**
- 6. Exhibit E – Non-Collusive Affidavit – Required Submittal**
- 7. Exhibit F – Equal Opportunity Clause – Required Submittal**
- 8. Exhibit G – Sample Contract Document**
- 9. Exhibit H – Insurance Requirements**
- 10. Exhibit I – Unsworn Declarations Act – Required Submittal**
- 11. Exhibit J - Davis Bacon Requirements**

**Invitation for Bid
Mechanical and Electrical
at
Brittany Park Apartments**

Scope of Work: King County Housing Authority (KCHA)'s Weatherization Department is soliciting bids from qualified firms to provide and install the following items at **Brittany Park Apartments** located at **18265 First Avenue South, Normandy Park, WA 98148**, a property with 43 units owned by King County Housing Authority:

1. WORK SCOPE SUMMARY

- A. Install forty-three (43) AIO Vertical Tower heat pumps (PTHPs).
- B. Install forty-three (43) wireless, wall-mounted PTHP thermostats.
- C. Replace existing HVAC Dampers with Fire Dampers in common areas.
- D. Replace Supply Damper
- E. Replace Exhaust Damper
- F. Replace Supply Fan Motor
- G. Replace Exhaust Fan Motor
- H. Replace water pump for energy recovery ventilation system.
- I. Balance HVAC system to ASHRAE 62.1 and ASHRAE 62.2

Bids are requested for a base bid which is the firm's contract price for the complete scope of work as proposed and unit prices which will be used to calculate additive or deductive changes to the scope.

Work is to be performed in accordance with:

- Exhibit C: Form of Proposal
- Exhibit D: Mechanical and Electrical Specifications
- Normandy Park, Washington Construction Codes
- Current Standard Work Specifications for Home Energy Upgrades (available at <https://sws.nrel.gov/>)

Bidder Qualifications: Bids will be accepted only from firms that:

- are appropriately licensed and/or bonded to do business in the State of Washington.
- have a state UBI number.
- have a Washington State Contractor's license for the last two (2) years under the same business name.
- have required certifications and licensing for self-performance of electrical repairs or for subcontracting electrical repairs to a properly licensed electrical contractor. 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 as required by L & I.
- have firm insurance coverage, as do any subcontractors the firm employs or intends to employ, as described in Exhibit E Insurance Requirements for Weatherization Contracts.
- are not debarred, suspended or otherwise ineligible to contract with KCHA.
- not in a current unresolved violation of any KCHA contract that has not been completed/closed.
- have a good record of past performance that includes, but is not limited to, high quality work, ability to complete projects on time, firm's integrity, and compliance with public policy, financial, contractual & tax obligations, as well as Federal and State rules and regulations in performing construction contracts.
- employ technicians certified by the manufacturer of the DHP equipment to install the equipment and certified as Type II technicians as required by 40 CFR Part 82, Subpart F.

Labor Standards; Davis Bacon, HUD Non-Routine Maintenance and Related Acts: The Contractor shall comply with all provisions of the Davis-Bacon Act and Related Acts such as the Housing Act of 1937, the National Housing Act, the Housing and Community Development Act of 1974, the National Affordable Housing Act of 1990, Equal Employment Opportunity 41 CFR Part 60 or similar related Act for Federal Labor Standards for this Contract. The Contractor is responsible for the full compliance of all employers, including the Contractor, Subcontractors, and all the Lower-Tier Subcontractors with the Labor Standards Provisions applicable to this Project. **Filing costs for Required Payroll submissions will not be reimbursed separately.**

Payment of Sales Tax: Provisions of state law allow sales tax exemptions for weatherization materials / tangible items installed under the Low-Income Weatherization Program (RCW 70.164). See also [WA DOR Special Notice Sales and Use Tax Exemption for the Weatherization Assistance Program](#).

Bidders are required to separate each bid price into its materials, and labor/overhead/profit components. Only the labor/overhead/profit (non-tangible items) components of each bid will be subject to sales tax.

Questions: Any questions or requests for further information or clarification must be directed to, Arthur Gwin, ArthurG@kcha.org (206)226-1308, Multifamily Weatherization Construction Coordinator, and CC EnergyConservation@kcha.org, no later than **6/23/2026 at 2:00 p.m.**

Pre-Bid Meeting: A Pre-Bid Meeting will take place at **Brittany Park Apartments, 18265 First Avenue South, Normandy Park, WA 98148** on **6/17/2026 at 11:00 a.m.** Attendance at this pre-bid meeting is **mandatory** for all potential bidders. It may be possible, at KCHA's convenience, to schedule an alternate site visit; however, attendance at a site visit that is conducted by KCHA staff is required for submitting a bid.

Submission Deadline: Bids must be received **no later than 6/30/2026 at 2:00 p.m.** All submissions will be stamped upon receipt. **No submittals will be accepted after this time.** Submissions will be publicly opened immediately following the submission deadline.

Submission Instructions: A complete/responsive bid package will include one completed/signed:

- **Exhibit B:** Bidders Information Sheet
- **Exhibit C:** Form of Proposal
- **Exhibit D:** Mechanical Specifications
- **Exhibit E:** Non-Collusive Affidavit
- **Exhibit F:** Equal Opportunity Clause
- **Exhibit I:** Unsworn Declarations Act
- Proof of Certified Type II Technician
- Certificate from manufacturer showing completion of training
- Copy of Business License
- Attendance of Pre-Bid meeting
- Proposed Installation Schedule
- Proposed Service Plan & Information

All fields and questions on required forms must be fully answered and complete. Failure to do so may result in the bid being declared non-responsive. Bids that include exclusions or qualifications may be declared non-responsive.

Bids may be submitted via:

- Email with subject line "**Mechanical and Electrical for Brittany Park Apartments**" to ArthurG@kcha.org and cc EnergyConservation@kcha.org
 - If the email **file is above 15MB in size** it will be rejected by our servers. Either reduce the file size or reach out to all contacts above prior to the deadline to make alternate electronic arrangements for delivery.
- USPS Certified mail, overnight delivery service (UPS, Fed Ex, etc.), or hand delivery in a sealed envelope marked "**Mechanical and Electrical for Brittany Park Apartments**" to **King County Housing Authority, Attn: Arthur Gwin, 700 Andover Park W, Ste. D, Tukwila, WA 98188.**

Addenda: In the event that there are changes or clarifications to this Invitation for Bid, KCHA shall issue an addendum. Addenda will only be sent to those firms who have registered with KCHA as they have received an official copy of the Invitation for Bid. It is the responsibility of the Bidder to check with KCHA prior to the submittal deadline to ensure that all addenda issued by KCHA have been received.

Duration: Once a contract has been awarded and executed by the selected bidder and KCHA, a written notice to proceed will be issued. All work must be completed no later than the date specified within the issued contract. The contractor will submit a proposed installation schedule based upon the expected projected contract dates are:

- Notice of Award - 7/8/2026
- Contracting - 7/24/2026
- Notice to Proceed - 7/27/2026
- Completed Invoicing - 12/1/2026
- KCHA Inspection – 12/4/2026

Rights Reserved by KCHA: KCHA reserves the right to waive any irregularities or informalities in the Invitation for Bid and to reject any and/or all responses. Bidders shall acquire no right and KCHA shall incur no obligations prior to the execution of a written contract.

Payment Requirements: Bidders should be aware that KCHA will only make payments on the contract issued under this Invitation for Bid after the work being billed has been completed such that it passes final inspection by KCHA. No advance payments will be made to the Bidder, who must have the capacity to meet all expenses in advance of payments by KCHA. KCHA will not pay interest to the Bidder for accounts where retainage funds are maintained by KCHA. The Bidder agrees to waive any other options and has made allowances for this waiver.

Retainage: KCHA shall retain 5% of the amount of each per building payment until release by Washington State Employment Security Department, Washington State Department of Revenue and Washington State Department of Labor & Industries.

Payment and Performance Bond: The winning firm will be required to provide a payment and performance bond equal to one hundred percent (100%) of the contract price. Bonds must be obtained from guarantee or surety companies acceptable to the U.S. Government as listed in U.S. Treasury Circular Number 570. For contracts of less than \$150,000.00 RCW 39.08.010 (4) allows at the public entity's option, the retention of 10% of the contract amount rather than a Performance Bond. However, KCHA will require a Performance Bond in all situations. All costs from the Performance and Payment Bond are the responsibility of the bidder and shall be included in the bid price.

Public Records: Bid documents are considered public records, subject to inspection upon written request per RCW 42.56. All information submitted to KCHA will become public records. Please do not submit confidential and/or proprietary information to your firm.

Independent Contractor Status: The firm is an independent contractor and is not an employee, partner, joint venture or officer with KCHA. No payroll or employment taxes of any kind shall be withheld or paid with respect to payments to the firm. The firm covenants and warrants that the firm shall pay when due all of the firm's costs and expenses arising from the relationship described herein including without limitation all required payments of estimated tax, income tax, social security taxes, state and local taxes, state disability insurance tax or premiums, unemployment insurance taxes and penalties or interest thereon, and the firm shall indemnify and hold the KCHA harmless from any costs or liability, including reasonable attorney fees, resulting from the firm's breach hereunder.

Safety: Firm must follow Firm's written Safety Plan, including mask requirements while working inside residence units/homes.

Subcontractors: If Bidder requires the use of subcontractors to provide any of the proposed services, the contractor must indicate in Exhibit A, Bidder's Information Sheet. Please note that the use of subcontractors requires a written contract

between the Bidder and the subcontractor for the proposed project that contains all the provisions of the contract between the Bidder and KCHA.

Bid Evaluation Criteria: The low bid, for purposes of award, shall be the lowest responsive bid from a qualified responsible bid offering the low aggregate amount for the base bid, plus additive or deductive bid alternatives selected by KCHA. KCHA reserves the right to contact references and investigate past performance and qualifications of the Bidder, subcontractor(s), and project team members. Poor reference(s) may be justification to determine that a Bidder is not responsible. If the lowest bidder is determined to be not responsible, KCHA will issue in writing the specific reasons for this determination. The bidder may appeal this decision in writing within two business days. The appeal may include additional information not included in the original bid documents. KCHA will make a final determination after the receipt of the appeal. The final determination may not be appealed.

Award of Contract: Contract award will be contingent on the Bidder's ability to secure payment & performance bonding as required, and insurance as described in the Insurance Requirement for Weatherization Contracts. Required performance and payment bonding and insurance certificates & endorsements shall be submitted to KCHA within 14 days of contract award. A Notice to Proceed shall not be issued until after their receipt.

EXHIBIT A
GENERAL CONDITIONS

PART 1 - GENERAL PROVISIONS

1.1 DEFINITIONS

- A. "Contract Documents" means the Instructions to Bidders, Specifications, Plans, General Conditions, Contractor Certification of Prevailing Wage Responsibilities, Prevailing Wage Rates, Bid Form, Contract Form, other Special Forms, Drawings and Specifications, and all Addenda and modifications thereof.
- B. "Contract Sum" is the total amount payable by King County Housing Authority to Contractor for performance of the Work in accordance with the Contract Documents.
- C. "Day" means calendar day, unless otherwise specified.
- D. "Contract Time" is the number of consecutive Days allotted in the Contract Documents for achieving completion of the Work.
- E. "Notice to Proceed" means a notice from King County Housing Authority to Contractor that defines the date on which the Contract Time begins to run.
- F. "Work" means the construction and services required by the Contract Documents, and includes, but is not limited to, labor, materials, supplies, equipment, services, permits, and the manufacture and fabrication of components, performed, furnished, or provided in accordance with the Contract Documents.
- G. "Final Acceptance" means the acceptance by King County Housing Authority that the Contractor has completed the requirements of the Contract Documents.
- H. "Liquidated Damages" means the amount prescribed in the Contract Documents to be deducted from any payments due or to become due Contractor, for each day's delay in completion of the Work beyond the time allowed in the Contract Documents as stated in the Notice to Proceed, plus any extensions of such time.
- I. "Owner" means King County Housing Authority.
- J. "Property Manager" means the property management company, its officers and employees.
- K. "Contracting Officer" means the person delegated the authority by King County Housing Authority to enter into, and/or terminate this Contract. The term includes any successor Contracting Officer and any duly authorized representative of the Contracting Officer.
- L. "Manager" means the person who is an authorized agent of the King County Housing Authority to administer the Contract. John Ricci is the person.
- M. "Contractor" means the person or other entity entering into the Contract with King County Housing Authority to perform all of the services or work required under the Contract.
- N. "Subcontract" means any contract, purchase order, or other purchase agreement, including modifications and change orders to the foregoing, entered into by a Subcontractor to furnish supplies, materials, equipment, and services for the performance of the prime Contract or a subcontract.
- O. "Subcontractor" means any supplier, vendor, or firm that furnishes supplies, materials, equipment, or services to or for the Contractor or another Subcontractor.

GENERAL CONDITIONS

1.2 EXECUTION AND INTENT

- A. The intent of the Specifications and Drawings is to describe a complete Project to be constructed in accordance with the Contract Documents. Contractor shall furnish all labor, materials, equipment, tools, transportation, permits, and supplies, and perform the Work required in accordance with the Contract Documents.
- B. All work is to be executed in accordance with the Building Codes, as adopted by the Authority Having Jurisdiction, and other applicable codes and generally accepted industry standards. All products and materials are to be new and handled and applied in accordance with the manufacturer's recommendations.
- C. Contractor makes the following representations to King County Housing Authority:
 - 1. The Contract Sum is reasonable compensation for the Work and the Contract Time is adequate for the performance of the Work, as represented by the Contract Documents.
 - 2. Contractor has carefully reviewed the Contract Documents, had an opportunity to visit and examine the Project site, has become familiar with the local conditions in which the Work is to be performed, and has satisfied itself as to the nature, location, character, quality and quantity of the Work, the labor, materials, equipment, goods, supplies, work, permits, services and other items to be furnished and all other requirements of the Contract Documents, as well as the surface and subsurface conditions and other matters that may be encountered at the Project site or affect performance of the Work or the cost or difficulty thereof.
- D. The Contract Documents are complementary. What is required by one part of the Contract Documents shall be binding as if required by all. Anything mentioned in the Specifications and not shown on the Drawings, or shown on the Drawings and not mentioned in the Specifications, shall be of like effect as if shown or mentioned in both.

GENERAL CONDITIONS

1.3 INSURANCE AND BONDS

- A. The firm awarded the contract shall procure and maintain for the duration of the contract insurance against claims for injuries to persons or damages to property, which may arise from or in connection with the performance of the work hereunder by the firm, its employees, subcontractors, agents and representatives, and anyone acting on its behalf. The cost of such insurance shall be borne by the firm. By requiring the insurance below, KCHA makes no statement or representation that such coverages and limits are independently adequate for the firm's business operations. The responding firm is encouraged to contact their insurance representative to establish such adequacy.

Minimum Scope of Insurance

Shall be at least as broad as:

- Insurance Services Office (ISO) covering: Commercial General Liability written on an "occurrence" basis.
- Insurance Services Office (ISO) covering: Automobile Liability, symbol 1 (any auto).
- Worker's Compensation Insurance (L&I) as required by Washington State Law and Washington Stop Gap.
- Contractor's Pollution Liability with coverage at least three (3) years after the completion of the work.

Minimum Coverage:

Shall be at least as broad as:

General Liability (CGL):	\$ 1,000,000.00 per occurrence for bodily injury, personal injury, property damage, and products/completed operations with no less than a \$2,000,000 aggregate limit
Automobile Liability:	\$ 1,000,000.00 per accident for bodily injury/property damage.
Washington Stop Gap:	\$ 1,000,000.00 per accident for bodily injury, sickness, or disease.
Contractor's Pollution Legal Liability	\$ 1,000,000.00 per claim applicable to the work performed covering pollution and/or asbestos liability with a \$2,000,000 aggregate limit.

Deductibles and Self-Insured Retentions:

Any deductibles or self-insured retentions must be declared to and approved by the KCHA. At the option of KCHA, either the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects KCHA, its officers, officials, employees and volunteers; or the firm shall provide a financial guarantee satisfactory to KCHA guaranteeing payment of losses and related investigations, claim administration and defense expenses.

Other Insurance Provisions:

1. The CGL Automobile, and Contractor's Pollution Liability policies shall contain, or be endorsed to contain, a provision naming the state of Washington, Authority (KCHA), and their officers, officials, employees, agents, partners, and volunteers as additional insureds as respects products and services of the firm.
2. The firm's insurance coverage shall be primary insurance as respects the Authority (KCHA), its officers, officials, employees, agents, partners, and volunteers. Any insurance or self-insurance maintained or expired by the Authority (KCHA), its officers, officials, employees, agents, partners, or volunteers shall be excess of the firm's insurance and shall not contribute with it.
3. Each insurance policy required by this clause shall be endorsed to state that coverage shall not be canceled or materially changed, except after **thirty (30) days** [**Ten days (10)** for non-payment of premium] prior written notice by certified mail, return receipt requested, has been given to the Authority (KCHA).
4. Maintenance of the proper insurance for the duration of the contract is a material element of the contract. Material changes in the required coverage or cancellation of the coverage shall constitute a material breach of the contract.
5. **Acceptability of Insurers:** Insurance is to be placed with insurers with a current A.M. Best rating of no less than A-: VII. Firms must provide written verification of their insurer's rating.

GENERAL CONDITIONS

6. **Verification of Coverage:** The firm shall furnish the Authority (KCHA) with original certificates and amendatory endorsements effecting coverage required by this clause. All certificates and endorsements are to be received and approved by the Authority (KCHA) before firm commences delivery of products or services. The Authority (KCHA) reserves the right to require complete, certified copies, or pertinent parts thereof, of all required insurance policies, including endorsements affecting the coverage required by these specifications at any time.
7. **Subcontractors:** Any subcontractor shall include the Authority (KCHA), its officers, officials, employees, agents, partners, and volunteers as an additional insured under its policies. The firm shall be responsible for subcontractors complying with such requirement, and failure to confirm compliance shall constitute breach of contract by the firm. All coverage for subcontractors shall be subject to all of the requirements stated herein.
8. **Pollution Coverage:** If the services involve lead-based paint or asbestos identification/remediation, the firm's Pollution Liability policy shall not contain lead-based paint or asbestos exclusions. If the services involve mold identification/remediation, the firm's Pollution Liability policy shall not contain a mold exclusion, and the definition of Pollution shall include microbial matter, including mold.

1.4 VERIFICATION OF COVERAGE

- A. Contractor shall furnish the Owner with original certificates and amendatory endorsements effecting coverage required by this clause. All certificates and endorsements are to be received and approved by the Owner before work commences in sufficient time to permit contractor to remedy any deficiencies. The Owner reserves the right to require complete, certified copies of all required insurance policies or pertinent parts thereof, including endorsements affecting the coverage required by these specifications at any time.

1.5 SUBCONTRACTORS

- A. Contractor shall include all Subcontractors as insureds under its policies or shall obtain separate certificates for each Subcontractor before Subcontractors' work begins. Contractor shall be responsible for subcontractor complying with such requirement, and failure to confirm compliance shall constitute breach of contract by the Contractor. All coverages for Subcontractors shall be subject to all of the requirements stated herein.

1.6 PAYMENT AND PERFORMANCE BONDS

- A. Payment and performance bonds for 100% of the Contract Sum, including all Change Orders and taxes imposed by law, shall be furnished for the Work, and shall be in a form acceptable to the Owner. For bids under \$150,000, a contractor may elect to have 5% retainage in lieu of a payment and performance bond. However, KCHA will require a Performance Bond in all situations. All cost from the Performance and Payment Bond is the responsibility of the bidder, and shall be included in the bid price.

GENERAL CONDITIONS

PART 2 - PERFORMANCE

2.1 CONTRACTOR CONTROL AND SUPERVISION

- A. Contractor shall be solely responsible for, and have control over construction means, methods, techniques, sequences, and procedures and for coordinating all portions of the Work, and shall be responsible to Owner for acts and omissions of Contractor, Subcontractors, and their employees and agents.
- B. Contractor shall enforce strict discipline and good order among Contractor's employees and other persons performing the Work. Contractor shall not permit employment of persons not skilled in tasks assigned to them. Owner may, by Notice, request Contractor to remove from the Work or Project site any employee Owner reasonably deems incompetent, careless, or otherwise objectionable.
- C. The Contractor shall perform on the site, and with its own organization, work equivalent to at least 12% of the total amount of work to be performed under the contract.
- D. Work Hours: The Contractor's allowable hours of operation shall be limited to those hours between 8:00 A.M. and 5:00 P.M. Monday to Friday excluding public holidays, unless an alternate schedule is agreed upon by King County Housing Authority.

2.2 PERMITS, FEES, AND NOTICES

- A. Unless otherwise provided in the Contract Documents, Contractor shall pay for and obtain all permits, licenses, and coordinate inspections necessary for proper execution and completion of the Work. Prior to final payment, the approved, signed permits shall be delivered to Owner.

2.3 PREVAILING WAGES. **SEE EXHIBIT J REGARDING THE DAVIS BACON ACT**

2.4 EQUAL EMPLOYMENT OPPORTUNITY

- A. During performance of the Work:
 - 1. Contractor shall not discriminate against any employee or applicant for employment because of race, creed, color, national origin, sex, age, marital status, the presence of any physical, sensory, or mental disability, sexual orientation, Vietnam-era veteran status, disabled veteran status or political affiliation, nor commit any unfair practices as defined in RCW 49.60.
 - 2. The Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, national origin, of any physical, sensory, or mental disability, sexual orientation, Vietnam-era veteran status, disabled veteran status, or political affiliation.
 - 3. The Contractor shall give all notices and comply with all applicable laws, ordinances, rules, regulations and orders in regard to Equal Employment Opportunity including but not limited to Executive Order 11246, as amended, Section 503 of the Rehabilitation Act of 1973, as amended, and the rules, regulations, and orders of the Secretary of Labor. The Contractor shall include the terms of this Clause in every subcontract so that such term shall be binding on each Subcontractor.
 - 4. Non-Discrimination R.C.W. 49.60: These special requirements establish minimum requirements for affirmative action and are intended to define and implement the basic discrimination provisions of these specifications. Failure to comply with these requirements may constitute grounds for application of contract default.

GENERAL CONDITIONS

2.5 SAFETY PRECAUTIONS

- A. In performing this contract, the Contractor shall provide for protecting the lives and health of employees and other persons; preventing damage to property, materials, supplies, and equipment; and avoid work interruptions. For these purposes, the Contractor shall:
1. Follow Washington Industrial Safety and Health Act (WISHA) regional directives and provide a site-specific safety program that will require an accident prevention and hazard analysis plan for the contractor and each subcontractor on the work site. The Contractor shall submit a site-specific safety plan to the Owner's representative prior to the initial scheduled construction meeting.
 2. Provide adequate safety devices and measures including, but not limited to, the appropriate safety literature, notice, training, permits, placement and use of barricades, signs, signal lights, ladders, scaffolding, staging, runways, hoist, construction elevators, shoring, temporary lighting, grounded outlets, wiring, hazardous materials, vehicles, construction processes, and equipment required by Chapter 19.27 RCW, State Building Code (Uniform Building, Electrical, Mechanical, Fire, and Plumbing Codes); Chapter 212-12 WAC, Fire Marshal Standards, Chapter 49.17 RCW, WISHA; Chapter 296-155 WAC, Safety Standards for Construction Work; Chapter 296-65 WAC; WISHA Asbestos Standard; WAC 296-62-071, Respirator Standard; WAC 296-62, General Occupation Health Standards, WAC 296-24, General Safety and Health Standards, WAC 296-24, General Safety and Health Standards, Chapter 49.70 RCW, and Right to Know Act.
 3. Comply with the State Environmental Policy Act (SEPA), Clean Air Act, Shoreline Management Act, and other applicable federal, state, and local statutes and regulations dealing with the prevention of environmental pollution and the preservation of public natural resources.
 4. Post all permits, notices, and/or approvals in a conspicuous location at the construction site.
 5. Provide any additional measures that the Owner determines to be reasonable and necessary for ensuring a safe environment in areas open to the public. Nothing in this part shall be construed as imposing a duty upon the Owner to prescribe safety conditions relating to employees, public, or agents of the Contractors.
- B. Contractor to maintain safety records: Contractor shall maintain an accurate record of exposure data on all incidents relating to the Work resulting in death, traumatic injury, occupational disease, or damage to property, materials, supplies, or equipment. Contractor shall immediately report any such incident to Owner. Owner shall, at all times, have a right of access to all records of exposure.
- C. Hazardous, toxic or harmful substances: Contractor's responsibility for hazardous, toxic, or harmful substances shall include the following duties:
1. Illegal use of dangerous substances: Contractor shall not keep, use, dispose, transport, generate, or sell on or about the Project site, any substances now or hereafter designated as, or which are subject to regulation as, hazardous, toxic, dangerous, or harmful by any federal, state or local law, regulation, statute or ordinance (hereinafter collectively referred to as "hazardous substances"), in violation of any such law, regulation, statute, or ordinance, but in no case shall any such hazardous substance be stored on the Project site.
 2. Contractor notifications of spills, failures, inspections, and fines: Contractor shall promptly notify Owner of all spills or releases of any hazardous substances which are otherwise required to be reported to any regulatory agency and pay the cost of cleanup. Contractor shall promptly notify Owner of all failures to comply with any federal, state, or local law, regulation, or ordinance; all inspections of the Project site by any regulatory entity concerning the same; all regulatory orders or fines; and all responses or interim cleanup actions taken by or proposed to be taken by any government entity or private party on the Project site.

GENERAL CONDITIONS

- D. Public safety and traffic: All Work shall be performed with due regard for the safety of the public. Contractor shall perform the Work so as to cause a minimum of interruption of vehicular traffic or inconvenience to pedestrians. All arrangements to care for such traffic shall be Contractor's responsibilities. All expenses involved in the maintenance of traffic by way of detours shall be borne by Contractor.
- E. Contractor to act in an emergency: In an emergency affecting the safety of life or the Work or of adjoining property, Contractor is permitted to act, at its discretion, to prevent such threatened loss or injury, and Contractor shall so act if so authorized or instructed.
- F. No duty of safety by Owner: Nothing provided in this section shall be construed as imposing any duty upon Owner with regard to, or as constituting any express or implied assumption of control or responsibility over, Project site safety, or over any other safety conditions relating to employees or agents of Contractor or any of its Subcontractors, or the public.

2.6 INDEPENDENT CONTRACTOR

- A. The Contractor and Owner agree the Contractor is an independent contractor with respect to the services provided pursuant to this Contract. Nothing in this Contract shall be considered to create a relationship of employer and employee between the parties hereto. Neither the Contractor nor any employee of the Contractor shall be entitled to any benefits accorded Owner employees by virtue of the services provided under this Contract. The Owner shall not be responsible for withholding or otherwise deducting federal income tax or social security or contributing to the State Industrial Insurance Program, or otherwise assuming the duties of an employer with respect to the Contractor, or any employees of the Contractor.

GENERAL CONDITIONS

2.7 OPERATIONS, MATERIAL HANDLING, AND STORAGE AREAS

- A. Contractor shall confine all operations, including storage of materials, to Owner-approved areas.
- B. Contractor shall be responsible for the proper care and protection of its materials and equipment delivered to the Project site.
- C. Contractor shall protect and be responsible for any damage or loss to the Work, or to the materials or equipment until the date of Final Acceptance, and shall repair or replace without cost to Owner any damage or loss that may occur.

2.8 PRIOR NOTICE OF EXCAVATION

- A. Prior to any excavation Contractor shall engage a locate service for all underground facilities or utilities. Contractor shall pay all fees for locator services and pay for all damages caused by excavation.

2.9 UNFORESEEN PHYSICAL CONDITIONS

- A. If Contractor encounters conditions at the site which are concealed physical conditions which differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, then Contractor shall give Notice to Owner. Conditions shall not be disturbed prior to such notice.

2.10 PROTECTION OF EXISTING STRUCTURES, EQUIPMENT, VEGETATION, UTILITIES, AND IMPROVEMENTS

- A. Contractor shall protect from damage all existing conditions, including soils, structures, equipment, improvements, utilities, and vegetation at or near the Project site; and on adjacent property of a third party, the locations of which are made known to or should be known by Contractor. Contractor shall repair any damage, including that to the property of a third party, resulting from failure to comply with the requirements of the Contract Documents, any defects of equipment, material, workmanship or design furnished by the Contractor, or failure by Contractor or subcontractor at any tier to exercise reasonable care in performing the Work. If Contractor fails or refuses to repair the damage promptly, Owner may have the necessary work performed and charge the cost to Contractor.
- B. New work which connects to existing work shall correspond in all respects with that to which it connects and/or be similar to existing work unless otherwise required by the Specifications.

2.11 MATERIAL AND EQUIPMENT

- A. All equipment, material, and articles incorporated into the Work shall be new and of the most suitable grade for the purpose intended, unless otherwise specifically provided in the Contract Documents. References in the Specifications to equipment, material, articles, or patented processes by trade name, make, or catalog number, shall be regarded as establishing a standard quality and shall not be construed as limiting competition. Contractor may, at its option, use any equipment, material, article, or process that, in the judgment of Owner, is equal to that named in the Specifications, unless otherwise specifically provided in the Contract Documents.
- B. Substitutions shall be considered where qualities and attributes including, but not limited to, cost, performance, weight, size, durability, visual effect, and specific features and requirements indicated are deemed equal or better by the Owner at the Owner's sole discretion. All requests for substitutions shall be made in writing to Owner and shall not be deemed to be approved unless approved in writing by Owner.

GENERAL CONDITIONS

2.12 CORRECTION OF NONCONFORMING WORK

- A. Contractor shall promptly correct Work found by King County Housing Authority not to conform to the requirements of the Contract Documents, whether observed before or after Final Acceptance.
- B. If Contractor fails to correct nonconforming Work, King County Housing Authority may replace, correct, or remove the nonconforming Work and charge the cost thereof to the Contractor.

2.13 CLEAN UP

- A. Contractor shall at all times keep the Project site, including hauling routes, infrastructures, utilities, and storage areas, free from accumulations of waste materials. Before completing the Work, Contractor shall remove from the premises its rubbish, tools, scaffolding, equipment, and materials. Upon completing the Work, Contractor shall leave the Project site in a clean, neat, and orderly condition satisfactory to Owner. If Contractor fails to clean up as provided herein, and after reasonable notice from Owner, Owner may do so and the cost thereof shall be charged to Contractor.

2.14 SUBCONTRACTORS AND SUPPLIERS

- A. Contractor shall utilize Subcontractors and suppliers which are experienced and qualified.
- B. By appropriate written agreement, Contractor shall require each Subcontractor to be bound to Contractor by terms of those Contract Documents, and to assume toward Contractor all the obligations and responsibilities which Contractor assumes toward Owner in accordance with the Contract Documents. Each Subcontract shall preserve and protect the rights of Owner in accordance with the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights. Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. However, nothing in this paragraph shall be construed to alter the contractual relations between Contractor and its Subcontractors with respect to insurance or bonds.
- C. Contractor shall schedule, supervise, and coordinate the operations of all Subcontractors. No Subcontracting of any of the Work shall relieve Contractor from its responsibility for the performance of the Work in accordance with the Contract Documents or any other obligations of the Contract Documents.
- D. It is the Contractor's responsibility to pay its Subcontractors and material suppliers on a timely basis. The Owner reserves the right to withhold a portion of the Contractor's payment if the Contractor fails to make timely payments to the Subcontractors and material suppliers.
- E. The Contract Documents shall not be construed to create a contractual relationship of any kind between the Owner and any Subcontractor; or any persons other than Owner and Contractor.
- F. The Contractor shall not enter into any subcontract with any subcontractor who has been suspended or debarred from participating in contracting programs by any agency of the United States Government or by any state, territory, or municipality.

GENERAL CONDITIONS

2.15 INDEMNIFICATION

- A. The firm hereby agrees to indemnify, defend, and hold harmless the Authority (KCHA), and their successors and assigns, directors, officials, officers and employees, volunteers, partners, and agents (all foregoing singly and collectively (“Indemnities”), from and against any and all claims losses, harm costs, liabilities, damages and expenses, including, but not limited to, reasonable attorney’s fees arising or resulting from the performance of the services, or the acts or omissions of the firm, its successors, and assigns, employees, subcontractors or anyone acting on the firm’s behalf in connection with this Contract or its performance of this Contract.
- B. PROVIDED, however, that the firm will not be required to indemnify, defend, or save harmless the indemnitee as provided in the preceding paragraphs of this section if the claim, suit, or action for injuries, death, or damages is caused by the sole negligence of the indemnitee. Where such claims, suits, or actions result from the concurrent negligence of (a) the indemnitee or the indemnitee’s agents or employees and (b) the firm or the firm’s agent or employee, the indemnity provisions provided in the preceding paragraphs of this section shall be valid and enforceable only to the extent of the firm’s negligence or the negligence of its agents, employees.
- C. FURTHERMORE, the firm acknowledges that the foregoing indemnity is specifically and expressly intended to constitute waiver of the firm’s immunity under Washington’s Industrial Act, RCW Title 51, and that this waiver has been specifically negotiated and agreed upon by the parties.
- D. The firm hereby agrees to require all its subcontractors or anyone acting under its direction or control or on its behalf in connection with or incidental to the performance of this Contract to execute an indemnity clause identical to the preceding clause, specifically naming the King County Housing Authority (KCHA) as Indemnitee, and failure to do so shall constitute a material breach of this Contract by the firm.

2.16 PROHIBITION AGAINST LIENS

- A. The Contractor is prohibited from placing a lien on the Owner’s property. This prohibition shall apply to all subcontractors of any tier and all materials suppliers, in accordance with RCW 35.82.190.

2.17 DAMAGES FOR FAILURE TO ACHIEVE TIMELY COMPLETION

- A. Liquidated Damages
 - 1. Timely performance and completion of the Work is essential to Owner and time limits stated in the Contract Documents are of the essence. The liquidated damage amounts set forth will be assessed not as a penalty, but as liquidated damages for breach of the Contract Documents. This amount is fixed and agreed upon by and between the Contractor and Owner because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Owner would in such event sustain. This amount shall be construed as the actual amount of damages sustained by the Owner, and may be retained by the Owner and deducted from any payments to the Contractor.
 - 2. If different completion dates are specified in the contract for separate parts or stages of the work, the amount of liquidated damages shall be assessed on those parts or stages which are delayed.

2.18 WAIVER AND SEVERABILITY

- A. The failure or delay of either party to insist on performance of any provision of the Contract, or to exercise any right or remedy available under the Contract, shall not be construed as a waiver of that provision, right, or remedy in any later instance. Waiver or breach of any provision of the Contract shall not be construed to be a waiver of any other or subsequent breach and shall not be construed to be a modification of the terms of the Contract, unless the Contract is modified pursuant to the Clause entitled “Contract Modifications” herein.

GENERAL CONDITIONS

- B. If any provision of the Contract is or becomes void or unenforceable by operation of law, the remaining provisions shall be valid and enforceable.

PART 3 - PAYMENTS AND COMPLETION

3.1 CONTRACT SUM

- A. The Contract Sum shall include all taxes imposed by law and properly chargeable to the Project, including sales tax. The Contractor shall pay the WSST to the Department of Revenue and shall furnish proof of payment to the Owner if requested.
- B. Provisions of state law (RCW 70.164) allow a sales tax exemption for weatherization materials installed under the Low-Income Weatherization Program, as outlined in the Washington State Department of Revenue Special Notice: Sales and Use Tax Exemption for the Weatherization Assistance Program. Tangible personal property that becomes a permanent part of a qualifying residence under the weatherization program is eligible for the exemption from sales tax and use tax. Examples of qualifying weatherization materials include, but are not limited to the following: insulation and sealants; parts for air infiltration; heating and cooling equipment; supplies used to seal and repair ducts. Charges for labor and services used to install these materials continue to be subject to sales tax and use tax. The retail sales tax does not apply to the gross contract price.
- C. Prime and subcontractors are required to pay retail sales tax upon all purchases of materials, including prefabricated and precast items, equipment, leases or rentals of tools, consumables, and other tangible personal property which is installed, applied, attached, or otherwise incorporated in their work.

3.2 APPLICATION FOR PAYMENT

- A. Respondents should be aware that KCHA will only make payments on the contract issued under this RFP after the work being billed has been completed and passed inspection. No advance payments will be made to the awarded Firm, who must have the capacity to meet all expenses in advance of payments by KCHA.
- B. Invoicing shall be on a building by building basis.
- C. King County Housing Authority shall retain 5% of the amount of each progress payment until release by Washington State Employment Security Department and Washington State Department of Revenue and Department of Labor & Industries.
- D. Upon completion of work items, the Firm shall submit to KCHA:
 1. The Firm's invoice listing all completed work items and separating cost for materials from labor for each item;
 2. Copies of permits, if appropriate, indicating the approval of the code enforcement jurisdiction; and,
 3. the Contractor Warranty and Release of Liens.
 4. Intents and Affidavits of wages paid

GENERAL CONDITIONS

All submittals shall identify the property owner and building address, and note the project completion date. Upon receipt thereof, KCHA shall inspect and either approve the Work or notify the Firm of corrections required. Once the Work is accepted by KCHA and all required payroll documentation has been submitted and approved, KCHA will authorize payment of The Firm's invoice. Payments shall be issued by KCHA. Interim or final payment may be withheld due to:

- unsatisfactory prosecution of the work by the Firm;
- defective work not remedied;
- claims filed against KCHA, Owner or the property;
- failure of the Firm to make required payments to subcontractors or for labor, materials or equipment or
- failure of the Firm to submit required payroll documentation.

The Firm shall charge Washington State Sales Tax only on the labor portion of the costs but not on materials per the Buyers' Retail Sales Tax Exemption Certificate

Waivers of Lien: With each Application for Payment, submit conditional waivers of lien from every entity who is lawfully entitled to file a lien arising out of the Contract and related to the Work covered by the payment.

- E. Approved payments shall be mailed to the Contractor within 30 days.

3.3 FINAL COMPLETION, ACCEPTANCE, AND PAYMENT

- A. Final Completion shall be achieved when the Work is fully and finally complete in accordance with the Contract Documents.
- B. Acceptance of final payment by Contractor, or any Subcontractor, shall constitute a waiver and release to Owner of all claims by Contractor, or any such Subcontractor, for an increase in the Contract Sum or the Contract Time, and for every act or omission of Owner relating to or arising out of the Work, except for those Claims made in accordance with the procedures, including the time limits, set forth in 0.

PART 4 - CHANGES

4.1 CHANGE IN THE WORK

- A. Owner may, at any time and without notice to Contractor's surety, order additions, deletions, revisions, or other changes in the Work. These changes in the Work shall be incorporated into the Contract Documents through the execution of Change Orders. If any change in the Work ordered by Owner causes an increase or decrease in the Contract Sum or the Contract Time, an equitable adjustment shall be made as provided in 0 and 4.3.
- B. Pending agreement on the terms of the Change Order, Owner may direct Contractor to proceed immediately with the Change Order Work. Contractor shall not proceed with any change in the Work until it has obtained Owner's approval.

GENERAL CONDITIONS

4.2 CHANGE IN THE CONTRACT SUM

- A. Change Order Pricing - Fixed Price: When the fixed price or time and materials method is used to determine the value of any Work covered by a Change Order, or of a request for an equitable adjustment in the Contract Sum, the following procedures shall apply:
1. Contractor's Change Order proposal, or request for adjustment in the Contract Sum, shall be accompanied by a complete itemization of the costs, including labor, material, subcontractor costs, and overhead and profit. The costs shall be itemized in the manner set forth below, and shall be submitted on breakdown sheets with documentation in a form approved by Owner.
 2. Any request for adjustment of Contract Sum shall include only the following items:
 3. Labor calculated at the prevailing wage for the relevant job classification marked up by no more than 35% to cover the costs of payroll taxes, Workman's Compensation Insurance, etc.
 4. Actual costs for materials marked up by no more than 25% to cover the costs of use taxes, warehousing, transportation, etc.
 5. Profit and Overhead at no more than 14%
 - a. Insurance or Bond Premium: The costs of any change or additional premium of Contractor's liability insurance and public works bond arising directly from the changed Work. The costs of any change in insurance or bond premium shall be added after overhead and profit are calculated.
- B. Change Order Pricing - Unit Prices
1. Work on a unit-price basis as stated in the Specifications and at the price submitted in the Bid Form.
 - a. Unit prices shall include reimbursement for all direct and indirect costs of the Work, including overhead and profit, and bond and insurance costs; and
 - b. Quantities must be supported by field measurement verified by Owner.

4.3 CHANGE IN THE CONTRACT TIME

- A. The Contract Time shall only be changed by a Change Order. Contractor shall immediately notify Owner, and shall include any request for a change in the Contract Time in its Change Order proposal.

GENERAL CONDITIONS

PART 5 - CLAIMS AND DISPUTE RESOLUTION

5.1 CLAIMS PROCEDURE

- A. If the parties fail to reach agreement regarding any dispute arising from the Contract Documents, Contractor's only remedy shall be to file a Claim with Owner within 30 Days from Owner's final offer.
- B. The Claim shall be deemed to cover all changes in cost and time (including direct, indirect, impact, and consequential) to which Contractor may be entitled. It shall be fully substantiated and documented.
- C. After Contractor has submitted a fully-documented Claim, Owner shall respond, in writing, to Contractor with a decision within 30 Days from the date the Claim is received.
- D. Contractor shall proceed with performance of the Work pending final resolution of any Claim. Owner's written decision as set forth above shall be final and conclusive as to all matters set forth in the Claim.
- E. Any Claim of the Contractor against the Owner for damages, additional compensation, or additional time, shall be conclusively deemed to have been waived by the Contractor unless timely made in accordance with the requirements of this section.

5.2 ARBITRATION

- A. If Contractor disagrees with Owner's decision rendered in accordance with paragraph 5.1C, Contractor shall provide Owner with a written demand for arbitration. No demand for arbitration of any such Claim shall be made later than 30 Days after the date of Owner's decision on such Claim; failure to demand arbitration within said 30 Day period shall result in Owner's decision being final and binding upon Contractor and its Subcontractors.
 - 1. Notice of the demand for arbitration shall be filed with the American Arbitration Association (AAA), with a copy provided to Owner. The parties shall negotiate or mediate under the Voluntary Construction Mediation Rules of the AAA, or mutually acceptable service.
- B. All Claims arising out of the Work shall be resolved by arbitration. The judgment upon the arbitration award may be entered, or review of the award may occur, in the superior court having jurisdiction thereof. No independent legal action relating to or arising from the Work shall be maintained.

5.3 CLAIMS AUDITS

- A. All Claims filed against Owner shall be subject to audit at any time following the filing of the Claim. Failure of Contractor, or Subcontractors of any tier, to maintain and retain sufficient records to allow Owner to verify all or a portion of the Claim or to permit Owner access to the books and records of Contractor, or Subcontractors of any tier, shall constitute a waiver of the Claim and shall bar any recovery.
 - 1. In support of Owner audit of any Claim, Contractor shall promptly make available to Owner all records relating to the Work.

GENERAL CONDITIONS

PART 6 - TERMINATION OF THE WORK

6.1 TERMINATION BY OWNER FOR CAUSE

- A. Owner may, upon a written Notice to Contractor and to its surety, terminate (without prejudice to any right or remedy of Owner) the Work, or any part of it, for cause upon the occurrence of any one or more of the following events:
1. Contractor fails to prosecute the Work or any portion thereof with sufficient diligence to ensure Completion of the Work within the Contract Time;
 2. Contractor is adjudged bankrupt, makes a general assignment for the benefit of its creditors, or a receiver is appointed on account of its insolvency;
 3. Contractor fails in a material way to replace or correct Work not in conformance with the Contract Documents;
 4. Contractor repeatedly fails to supply skilled workers or proper materials or equipment;
 5. Contractor repeatedly fails to make prompt payment due to Subcontractors, suppliers, or for labor;
 6. Contractor materially disregards or fails to comply with laws, ordinances, rules, regulations, or orders of any public authority having jurisdiction; or
 7. Contractor is otherwise in material breach of any provision of the Contract Documents.
- B. Upon termination, Owner may at its option:
1. Take possession of the Project site and take possession of or use all materials, equipment, tools, and construction equipment and machinery thereon owned by Contractor to maintain the orderly progress of, and to finish, the Work;
 2. Finish the Work by whatever other reasonable method it deems expedient.
- C. Owner's rights and duties upon termination are subject to the prior rights and duties of the surety, if any, obligated under any bond provided in accordance with the Contract Documents.
- D. When Owner terminates the Work in accordance with this section, Contractor shall take the actions set forth in paragraph 6.2B, and shall not be entitled to receive further payment until the Work is accepted.
- E. If the unpaid balance of the Contract Sum exceeds the cost of finishing the Work, including compensation for A/E services and expenses made necessary thereby and any other extra costs or damages incurred by Owner in completing the Work, or as a result of Contractor's actions, such excess shall be paid to Contractor. If such costs exceed the unpaid balance, Contractor shall pay the difference to Owner. Contractor shall also be liable for liquidated damages until such reasonable time as may be required for Completion. These obligations for payment shall survive termination.
- F. Termination of the Work in accordance with this section shall not relieve Contractor or its surety of any responsibilities for Work performed.
- G. If Owner terminates Contractor for cause, and it is later determined that none of the circumstances set forth in 6.1A exist, then such termination shall be deemed a termination for convenience pursuant to 0.

GENERAL CONDITIONS

6.2 TERMINATION BY OWNER FOR CONVENIENCE

- A. Owner may, upon Notice, terminate (without prejudice to any right or remedy of Owner) the Work, or any part of it, for the convenience of Owner.
- B. Unless Owner directs otherwise, after receipt of a Notice of termination for either cause or convenience, Contractor shall promptly:
 - 1. Stop performing Work on the date and as specified in the notice of termination;
 - 2. Place no further orders or subcontracts for materials, equipment, services or facilities, except as may be necessary for completion of such portion of the Work as is not terminated;
 - 3. Cancel all orders and subcontracts, upon terms acceptable to Owner, to the extent that they relate to the performance of Work terminated;

PART 7 - MISCELLANEOUS PROVISIONS

7.1 RECORDS KEEPING AND REPORTING

- A. The Contractor shall maintain accounts and records in accordance with State Auditor's procedures, including personnel, property, financial and programmatic records which sufficiently and properly reflect all direct and indirect costs of any nature expended and services performed in the performance of this Contract and other such records as may be deemed necessary by the Owner to ensure proper accounting for all funds contributed by the Owner to the performance of this Contract and compliance with this Contract.
- B. The Owner shall maintain these records for a period of six (6) years after termination or the contract.

7.2 AUDITS AND INSPECTIONS

- A. The records and documents with respect to all matters covered by this Contract shall be subject at all times to inspection, review or audit by the Owner or any other government agency so authorized by law during the performance of this Contract. The Owner shall have the right to an annual audit of the Contractor's financial statement and condition.

7.3 ORGANIZATION CONFLICTS OF INTEREST

- A. The Contractor warrants that to the best of its knowledge and belief and except as otherwise disclosed, it does not have any organizational conflict of interest which is defined as a situation in which the nature of work under this Contract and the Contractor's organizational, financial, contractual or other interests are such that:
 - 1. Award of the Contract may result in an unfair competitive advantage; or
 - 2. The Contractor's objectivity in performing the Contract work may be impaired.
- B. The Contractor agrees that if after award they discover an organizational conflict of interest with respect to this Contract, they shall make an immediate and full disclosure in writing to the Contracting Officer, which shall include a description of the action, which the Contractor has taken or intends to take to eliminate or neutralize the conflict. The Owner may, however, terminate the Contract if it deems the action to be in the best interest of the Owner.
- C. In the event the Contractor was aware of an organizational conflict of interest before the award of this Contract and intentionally did not disclose the conflict to the Contracting Officer, the Owner may terminate the Contract for default.

GENERAL CONDITIONS

- D. The provisions of this Clause shall be included in all subcontracts and consulting agreements wherein the work to be performed is similar to the services provided by the Contractor. The Contractor shall include in such subcontracts and consulting agreements any necessary provisions to eliminate or neutralize conflicts of interest.

7.4 INTERESTS OF MEMBERS OF CONGRESS

- A. No member of or delegate to the Congress of the United States of America shall be admitted to any share or part of this Contract or to any benefit to arise therefrom, but this provision shall not be construed to extend to this Contract if made with a corporation for its general benefit.

7.5 INTERESTS OF MEMBERS, OFFICERS, COMMISSIONERS AND EMPLOYEES, OR FORMER MEMBERS, OFFICERS AND EMPLOYEES

- A. No member, officer, or employee of the King County Housing Authority, no member of the governing body of the locality in which the project is situated, no member of the governing body in which the Owner was activated, and no other public official or such locality or localities who exercises any functions or responsibilities with respect to the project, shall, during his or her tenure, or for one year thereafter, have any interest, direct or indirect, in this Contract or the proceeds thereof.

**EXHIBIT B
BIDDER'S INFORMATION SHEET**

BASIC INFORMATION

Name of Firm (Company) _____

Business Address _____

Business Phone Number _____ Cell Phone Number _____

Email Address _____

Federal Tax ID Number _____

State UBI Number _____

Business Names and UBI #s used by Bidder in the past 5 years if different than above

This firm is a: Corporation ____ Partnership ____ Sole Proprietorship ____ LLC ____

Women or Minority Owned Firm? Yes No

How long has your organization been in business as a contractor? _____ years

How many years has your organization worked with weatherization programs? ____ Years

STAFF CONTACT INFORMATION

Project Manager _____ Phone Number _____

Email _____

Signing Authority for Contract Documents _____

Title of Signer _____ Email _____

Will contract documents require review before signing? Yes No

Contract Reviewer _____ Title _____

Email _____ Phone _____

Invoice Representative (Staff submitting invoices for payment) _____

Email _____ Phone _____

Note: All contracts will be routed directly to the signing authority and reviewers will not receive assigning authority in DocuSign.

LICENSES (Please attach copies)

Business License No. _____ Type of Business License _____

Are you licensed to do business in all of King County outside of Seattle? Yes No

If no, for what areas/cities are you licensed? _____

Washington State Contractor's License Number _____ Expiration Date _____

Other License Information (List other licenses, with expiration dates, that you hold that are necessary for the proposed work)

EMPLOYEES

Names and addresses of all owners, principals, partners, officers, etc.:

Name _____ Address _____

Name _____ Address _____

Name _____ Address _____

Name _____ Address _____

Number of regular full-time employees other than owner(s) _____

Do you anticipate hiring additional staff to work on this project? ____ If yes, how many? ____

SUBCONTRACTORS

Please list the subcontractors you intend to use in the performance of this work, along with the approximate % of the work that they will perform.

Name of Subcontractor % of work

Name of Subcontractor % of work

Name of Subcontractor % of work

BIDDER'S EXPERIENCE

List projects successfully supervised and completed by your company installing mechanical work including ductless heat pumps at apartment buildings in the last 3 years.

- 1. Name of Project _____ Completion Date _____
Duration _____ Amount of Contract _____
Owner's Name _____ Project Address _____
Contact Person _____ Phone Number _____
- 2. Name of Project _____ Completion Date _____
Duration _____ Amount of Contract _____
Owner's Name _____ Project Address _____
Contact Person _____ Phone Number _____
- 3. Name of Project _____ Completion Date _____
Duration _____ Amount of Contract _____
Owner's Name _____ Project Address _____
Contact Person _____ Phone Number _____

INSURANCE

Proof of insurance is required prior to the execution of a contract. KCHA will request proof of insurance from the winning bidder.

Liability & Property Damage Insurance Co. _____
Amt. \$ _____ Policy No. _____ Expiration Date _____
Agent _____ Phone No. _____
Address _____

Automobile Insurance Co. _____
Amt. \$ _____ Policy No. _____ Expiration Date _____
Agent _____ Phone No. _____
Address _____

REFERENCES

Bank Reference(s):

Name _____ Address _____ Phone _____

Name _____ Address _____ Phone _____

Supplier Reference(s):

Name _____ Address _____ Phone _____

Name _____ Address _____ Phone _____

Name _____ Address _____ Phone _____

For a project in which the total amount of all work orders issued to a contractor is \$100,000 or more, the contractor will be required to post a performance bond for that project.

Name of Bonding Co. _____

Agent _____ Phone No. _____

Address _____

BIDDER'S HISTORY

Has Bidder ever been found guilty of violating any State or Federal employment laws? _____

Has Bidder ever filed for protection under any provision of the federal bankruptcy laws or state insolvency laws? _____

Has any lien, claim and/or adverse legal action related to construction been rendered against Bidder in the past 5 years? (i.e. open claims, lawsuits, warrants, judgments including but not limited to those that would show on the L&I website) _____

Has Bidder or any of its employees filed any claims with Washington State Worker's Compensation or other insurance company for accidents resulting in fatal injury or dismemberment in the past 5 years? _____

If yes to any of the above, give details & attach additional pages as necessary _____

CERTIFICATION

In signing below, the Bidder agrees to all terms and conditions of King County Housing Authority’s Invitation for Bid Mechanical Work at [Click or tap here to enter text.](#). The Bidder hereby certifies that the information contained in this Bidder’s Information Sheet is accurate, complete and current. Further, the Bidder states that they are a _____(partner or officer) of the firm that is making the attached response.

Signature of Legal Authority _____

Title _____ Date _____

INSTRUCTIONS FOR ENTRY

BASE BID WORKSHEET

Select the base bid workworksheet and **enter into all cells that are highlighted in orange** . The cells highlighted in grey will automatically total the work and tax rates provided. Ensure to enter the project tax rate on page 2.

Project Tax Rate	0.0%
------------------	------

*Enter data in orange cells only			
		\$	5,000.00
ired	26	\$	130,000.00

ALTERNATE BID WORKSHEET

If there is an alternate bid worksheet below, repeat the same steps as in the Base Bid with the different equipment specified. An example of an alternate bid would be through wall DHP's vs. Split System DHPs. Labor and Materials will be different; therefore, pricing for each scope needs to be provided.

EQUIPMENT AND SIGNATURE WORKSHEE

This is where you will enter manufacturer and model information for each product specified. The equipment for both the base bid an any alternates will be listed here. You are only entering information into the orange cells. If there is not enough room in the line you can decrease the font size. Typed names will be accepted as signature. You must also select if the equipment differs from what was provided in the Mechanical Specifications.

Provide the manufacturer and model numbers for equipment below.

Split System DHP	
Wireless DHP Thermostat	
Ducted ERV 1 BR	

INSTALLATION SCHEDULE

The anticipated installation schedule can be based off of projected completion date as much as possible. This is not a scored category but rather assists in planning, spending and contract dates. This must be completed.

SERVICE INFORMATION & SCHEDULE

This is not a scored category but will provide informaiton to the owner for potential serivces offered by the installer that may be utilized directly from the owner.

TURNING IN YOUR BID

You will turn in this completed work book, with your equipment and signature page (hand typed signature will suffice). This has been presented as a tool to provide quality control checks for pricing on a project and per unit basis. The per building calculations will help inform invoices and what costs should be billed on a bldg by bldg level as stated in the contract.

QUESTIONS

If there are any questions or complications with this workbook contact:
Heather Hurt at heathere@kcha.org or (206) 214-1363 or
JaNita Clairmont at JaNitaC@kcha.org or (206) 576-2132

BASE BID

Mechanical & Electrical

BRITTANY PARK

18265 First Avenue South, Normandy Park, WA 98148

The undersigned, having reviewed the specifications, site conditions, and all related documents, and having field-verified all measurements outlined in the Mechanical Work Specifications prepared by the King County Housing Authority, hereby proposes to furnish all necessary labor, materials, and equipment to complete the mechanical work at the specified property and address. Each bidder must submit a base bid representing the firm's contract price for the full scope of work as proposed. Additionally, bidders may provide alternate pricing for optional work that may be selected in conjunction with the base bid. Unit pricing is also required and will be used to determine any additional or deductive changes to the project scope.

*Enter data in orange cells only

UNIT PRICING Pre-Tax

(A) In-Unit PTHP(AIO Vertical Tower Heat Pump)			
Material Cost per Unit			\$ -
Labor, Overhead & Profit per Unit			\$ -
	Total required	43	\$ -
(B) In-Unit PTHP Thermostat			
Material Cost per Unit			\$ -
Labor, Overhead & Profit per Unit			\$ -
	Total required	43	\$ -
(C) Common Area Supply Damper			
Material Cost per Unit			\$ -
Labor, Overhead & Profit per Unit			\$ -
	Total required	1	\$ -
(D) Common Area Exhaust Damper			
Material Cost per Unit			\$ -
Labor, Overhead & Profit per Unit			\$ -
	Total required	1	\$ -
(E) Common Area Fire Damper			
Material Cost per Unit			\$ -
Labor, Overhead & Profit per Unit			\$ -
	Total required	5	\$ -
(F) Common Area Water Pump			
Material Cost per Unit			\$ -
Labor, Overhead & Profit per Unit			\$ -
	Total required	1	\$ -
(G) HVAC Balancing system to ASHRAE 62.1 and ASHRAE 62.2			
Material Cost per Unit			\$ -
Labor, Overhead & Profit per Unit			\$ -
	Total required	1	\$ -

BASE BID SUMMARY

	10.3%
Total Materials (Non Taxable)	\$0.00
Total Labor, Overhead & Profit	\$0.00
Total Permits and Bond per Project	\$0.00
Tax on all P,B,L,O&P	\$0.00

Total Contract Base Bid, including Tax \$0.00

KCHA USE ONLY

Total Number of Bldgs 1

	Tax per			Per Unit Cost for Access Entry
			43	
(A) In-Unit PTHP(AIO Vertical Tower Heat Pump)	\$ -		\$ -	
Labor, Overhead & Profit per Unit	\$ -	\$ -	\$ -	\$ -
	Total Per Bldg		\$ -	
			43	
(B) In-Unit PTHP Thermostat	\$ -		\$ -	
Labor, Overhead & Profit per Unit	\$ -	\$ -	\$ -	\$ -
	Total Per Bldg		\$ -	
			1	
(C) Common Area Supply Damper	\$ -		\$ -	
Labor, Overhead & Profit per Unit	\$ -	\$ -	\$ -	\$ -
	Total Per Bldg		\$ -	
			1	
(D) Common Area Exhaust Damper	\$ -		\$ -	
Labor, Overhead & Profit per Unit	\$ -	\$ -	\$ -	\$ -
	Total Per Bldg		\$ -	
			5	
(E) Common Area Fire Damper	\$ -		\$ -	
Labor, Overhead & Profit per Unit	\$ -	\$ -	\$ -	\$ -
	Total Per Bldg		\$ -	
			1	
(F) Common Area Water Pump	\$ -		\$ -	
Labor, Overhead & Profit per Unit	\$ -	\$ -	\$ -	\$ -
	Total Per Bldg		\$ -	
			1	
(G) HVAC Balancing system to ASHRAE 62.1 and ASHRAE 62.2	\$ -		\$ -	

Labor, Overhead & Profit per Unit	\$ -	\$ -	\$ -	\$ -
	Total Per Bldg		\$ -	

Total Permits and Bond per Project with Tax	\$ -
Tax on Bond	\$ -

Total Cost Per Bldg
\$ -

Total Contract Cost	\$ -
Cost from base Bid error check	\$0.00
Differnce Check	\$ -

EQUIPMENT AND SIGNATURE

Mechanical & Electrical
BRITTANY PARK
18265 First Avenue South, Normandy Park, WA 98148

EQUIPMENT

*Enter data in unlocked cells only

Provide the manufacturer and model numbers for equipment below.

(A) In-Unit PTHP(AIO Vertical Tower Heat Pump)				
	Is this above item different than the equipment specified in Exhibit D?	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
(B) In-Unit PTHP Thermostat				
	Is this above item different than the equipment specified in Exhibit D?	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
(C) Common Area Supply Damper				
	Is this above item different than the equipment specified in Exhibit D?	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
(D) Common Area Exhaust Damper				
	Is this above item different than the equipment specified in Exhibit D?	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
(E) Common Area Fire Damper				
	Is this above item different than the equipment specified in Exhibit D?	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
(F) Common Area Water Pump				
	Is this above item different than the equipment specified in Exhibit D?	Yes	<input type="checkbox"/>	No <input type="checkbox"/>

ADDENDA: _____

Acknowledge receipt of the general conditions, mechanical specifications and any addenda by inserting the number(s) above.

The undersigned hereby agrees that this proposal shall be a valid and firm offer for a period of sixty (60)

Submitted on the: _____
Day Month Year

Signature of Bidder Printed Name of Bidder

Name of Firm _____

INSTALLATION SCHEDULE

Mechanical & Electrical

BRITTANY PARK

18265 First Avenue South, Normandy Park, WA 98148

Based on production needs, the anticipated completion date reflects the Weatherization Program's target for project completion. Please provide your firm's estimated completion date, regardless of whether it aligns with our anticipated timeline

KCHA Anticipated Completion Date **11/30/2026**

Firm Projected Delivery Dates

Inventory Delivery Date	
Inventory Verified	
Projected Start Date	
Fifty Percent completion Date	
Substantial Completion Date	
Final Inspection	
Completion Date	

Firms Notes regarding schedule:

enter notes here

EXHIBIT D
MECHANICAL SPECIFICATIONS

1. WORK SCOPE SUMMARY

- A. Install forty-three (43) AIO Vertical Tower heat pumps (PHTPs).
- B. Install forty-three (43) wireless, wall-mounted PHTP thermostats.
- C. Replace existing HVAC Dampers with Fire Dampers in common areas.
- D. Replace Supply Damper
- E. Replace Exhaust Damper
- F. Replace Supply Fan Motor
- G. Replace Exhaust Fan Motor
- H. Replace water pump for energy recovery ventilation system.
- I. Balance HVAC system to ASHRAE 62.1 and ASHRAE 62.2

2. GENERAL REQUIREMENTS

- A. Floor Protection- the use of floor protection (similar to Ram Board) should be used in all places during construction where floors elevations are greater than ¼ inch. Floors must be covered, with safe access provided, for any areas that have had their floor covering removed and will not get a new covering applied within 24hrs. If a situation arises that may prevent this, proposals must be made to KCHA beforehand for a review of proposed alternates option(s). All walkable surfaces must be available for use daily by 5pm.
- B. Protection Conditions – Building to be selectively demolished will remain fully occupied during the construction sequence. Isolating work areas to limit dust, dirt, noise, and debris is critically important during the construction process.
- C. Protection of Existing Improvements- Provide, erect and maintain barricades, coverings, or other types of protection necessary to prevent damage to existing improvements. Restore any site improvements, included but not limited to landscaping, pavement walks, structures, fences and planters, damaged by this work to their original condition, as acceptable by Owner.
- D. Schedule – The full scope of the work shall be performed and completed on a building-by-building, unit-by-unit basis to minimize the number of times that entry into individual units is required. All work needs to be coordinated with the property management team for proper notification to the residents. A project schedule must be developed prior to the start of construction, and weekly meetings will be held to monitor progress against the schedule.
- E. 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.
- F. Training – The Firm shall be responsible for the technical competence and qualifications of his or her installers and 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.
- G. 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.
 - H. Instruction – The Firm shall 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 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.
 - I. 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 the manufacturer’s specifications.
 - J. 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.
 - K. Mockup – The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been approved by the Owner. This will be accomplished with a mockup of one unit completed to include all items in the scope, including all finish work, patching, and painting. This mockup will need to be inspected by the AHJ and approved by KCHA and the building owner's representative prior to any work moving forward.

3. NEW EQUIPMENT REQUIREMENTS

- A. AIO Tower heat pumps (DHPs): refer to engineer drawings and specifications.
- B. Wireless, wall-mounted DHP thermostats: Thermostats must allow for daily and weekly program schedules, and have the ability to control existing resistance heat as a back up heat source.

Acceptable quality level: King Electric KRFTP-B 24v RF Multi-System thermostat kit

4. Installation Requirements

- A. Vertical Stack (DHPs): refer to engineer drawings and specifications.
- 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, except for handicap assessable units where the height should be 48 inches.
- C. HVAC system repair: refer to engineer drawings and specifications.

4. EXISTING EQUIPMENT

- A. 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.
- B. Safe Work Practices – Brittany Park Apartments was built in 1970 and is assumed to have lead base paint.

5. 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 residents.
- C. The Firm shall notify KCHA of each building's 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 accumulation 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. The damaged siding is the responsibility of the contractor to replace, and it shall be replaced with a 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. Cove base for interior walls shall be matched to pre-construction conditions. Paint will be supplied by the property manager or property maintenance staff.

6. 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.

SECTION 23 00 10

GENERAL HEATING, VENTILATING, AND AIR-CONDITIONING (HVAC) REQUIREMENTS

PART 1 GENERAL

1.01 GENERAL

- A. Conform to General Conditions, Supplementary Conditions, and Division 01.
- B. This section of the specification applies to the entire mechanical work, both interior and exterior, as specified herein after and shown on the plans.

1.02 SCOPE

- A. Provide heating, ventilating, and air conditioning equipment, piping, ductwork, etc. as shown on Plans and as described in contract documents.

1.03 DEFINITIONS

- A. The term "approved equal" means final approval by the Owner's representative of a material or piece of equipment substituted for that which is shown in the specifications or plans.
- B. The term "provide" means the furnishing and installing of equipment (including connections and appurtenances) complete and ready for use.
- C. The term "Mechanical Contractor (MC)" and "Electrical Contractor (EC)" as used in these Specifications or on the Contract Drawings, refers to those subcontractors working under the direction of the "General Contractor (GC)."

1.04 INTENT OF DRAWINGS

- A. The drawings are diagrammatic and do not show the exact details and locations, nor all offsets in ductwork and piping. Contractor shall provide additional fittings, offsets and extensions in piping, ductwork and related mechanical insulation as required to meet the intent of the documents. Contractor shall include in his bid provisions to relocate or shift piping and ductwork where conflicts exist with Structural, Architectural, or Electrical.
- B. Refer to the complete set of Plans and Specifications for additional details of the work. Review Plans and Specifications of other trades to identify other requirements. Discrepancies shall be reported to the Owner's representative immediately before ordering material or beginning work.

1.05 COORDINATION

- A. Examine the complete set of drawings including all disciplines before work is started. Consult with each of the other Contractors regarding locations and spaces required for work and lay out work to avoid interference. Maximum clearance shall be maintained for service access and maintenance of all equipment. Failure to coordinate shall be justification to require Contractor, at his own expense, to move his work to provide the necessary space for the other contractors.
- B. Contractor shall be responsible for his own coordination between all other trades. Development of Shop Drawings shall be a collaborative effort between the General Contractor, Mechanical Contractor, Electrical Contractor and all other subcontractors working on the project. Shifting of piping, ductwork and other mechanical items shall be the responsibility of the Team to maintain the intent of the documents. Submit shop drawings to the Owner's representative.

1.06 WORK IN OTHER SECTIONS

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

1.07 CODES AND REFERENCES

- A. Codes and Standards listed shall be the most current issue as adopted by the Local Jurisdiction. In the event of a conflict of codes, the most stringent code will apply.
 - 1. International Building Code (IBC)
 - 2. Uniform Plumbing Code (UPC)

3. International Mechanical Code (IMC)
4. Washington State Energy Code
5. SMACNA Duct Construction Standards, Metal and Flexible
6. National Electrical Code (NEC)

1.08 PERMITS AND FEES

- A. Obtain and pay for all permits, licenses and construction or utility fees. Furnish final certificate to Owner showing compliance with code requirements.

1.09 SCHEDULING

- A. Comply with requirements of General Specifications.

1.10 PRIOR APPROVALS

- A. Specifications have been written around equipment and material selected for this project based on quality, size, capacity, and performance required to meet building design criteria. Any equipment and/or material used in this project, that is not as specified, must have prior approval from the Owner's representative.
- B. Request for Approval must be submitted with substitution request form included in Division 0 to Owner's representative, a minimum of 10 calendar days prior to bid date. This letter shall be accompanied with complete information regarding items to be substituted.
- C. Those items that receive prior approval, will be listed in the Mechanical Addenda.
- D. Supplier, and/or Mechanical Contractor, shall be responsible for ensuring that substituted material or equipment is of the same size, quality, capacity, weight, and electrical characteristics as that specified. Any changes and costs required during construction, due to contractor's/supplier's neglect to properly select substituted equipment, shall be paid by the contractor/supplier.
- E. Prior approval to bid does not mean automatic final approval of material or equipment by the Owner's representative. Final approval will be given after final submittal data has been presented to Owner's representative, with complete information regarding weights, capacities, size, electrical requirements and quality.

1.11 MATERIAL AND MATERIAL SUBMITTALS

- A. All material used on the project shall be new material and free from defects. This Contractor shall submit catalog data and engineering data on all equipment as specified or having received prior approval.
- B. Material and equipment specified is designated by various manufacturer's catalog numbers. Acceptable alternate manufacturers are also listed. Such manufacturers are exempt from the 10-day prior approval clause of these specifications, but must submit standard submittal data for final approval as otherwise noted.
- C. Submittal shall be arranged in numerical order, according to specification section number and item number. Submittal shall be in PDF format complete with labeled bookmarks (minimum one per specification section).
- D. Submittal shall be as follows: Before ordering or installing any of the materials, this Contractor shall submit copies of complete information on the materials to be used on the project. Submittal shall include, but not be limited to, the following.
 1. Contractor's Cost Breakdown
 2. Complete List of Subcontractors and Suppliers
 3. HVAC Insulation
 4. Heat Pumps
 5. Air Terminals
 6. Air Filters
 7. HVAC Ductwork
 8. Tests and Adjustments
 9. Controls

- E. Owner's representative's review of submittals is for general conformance with the design concept and Contract Documents. Marking or comments shall not be construed as relieving the Contractor from compliance with the project Plans and Specifications, nor departures therefrom. The Contractor remains responsible for details and accuracy for confirming and correlating all quantities and assembly and for safe performance of his work.
- F. The Owner's representative will return one set of this submittal to the contractor showing any corrections, additions, and/or deletions. This Contractor shall resubmit those items that need to be corrected or added.

1.12 CONTRACTOR'S COST BREAKDOWN

- A. Mechanical Contractor shall submit, with the submittals, a cost breakdown of the major portions of his work, pursuant to the following outline.
 1. Job organization and submittals.
 2. Outside site utilities.
 3. HVAC Equipment.
 4. HVAC ductwork and air terminals.
 5. HVAC piping and insulation.
 6. HVAC specialties.
 7. Tests and adjustments
 8. Controls

1.13 RECORD (AS-BUILT) DRAWINGS

- A. This Contractor shall maintain a set of Contract Drawings at the site on which the actual installed location of piping, equipment, etc., shall be shown in a legible, neat manner. This set of plans shall show actual dimensions (including depth of bury) of underground piping from construction lines, so they can be readily found after covering. Upon completion of the project, the as-built information shall be transformed into AutoCAD version 2018 or greater. Record drawings shall be the same size as contract drawings. This set of plans shall be submitted for final approval. Drawings shall be one full size set, one half size set and on a USB flash drive in PDF and .dwg format. The contractor shall be ready for review of the on-site as-builts monthly prior to submitting his billing. Failure to have drawings available for review may delay monthly billings.

1.14 OPERATING INSTRUCTIONS

- A. Operate all systems through complete cycles in the presence of designated Owner's representative. Give instructions for operation, care and maintenance. All systems shall be operated through complete operating cycles for a minimum period of 7 days in conjunction with the designated Owner's representative before acceptance.

1.15 TRAINING

- A. The Mechanical Contractor shall digitally record all Owner Mechanical training sessions and shall provide copies on USB flash drives. Training sessions shall be provided for all mechanical systems. Three copies of these USB drives shall be turned over to the Owner at the completion of the project.

1.16 OPERATION AND MAINTENANCE MANUALS (O&Ms)

- A. General: Provide one preliminary searchable PDF set of Operation and Maintenance Manuals including maintenance information and parts list furnished by the manufacturer with the equipment, together with supplementary drawings where necessary, to itemize serving and maintenance points. Include the Valve Tag list as posted in the Mechanical spaces. Filter list shall include all sizes and quantities for each unit and recommended filter maintenance schedule. Include methods of operation, seasonal requirements, manufacturer's data and warranty forms. Warranty forms are to be located in the front of the manuals as well as in each applicable specific section. Provide address and 24-hour phone number of the firms responsible under warranty. Items requiring service or correction during the warranty period shall be serviced within 24 hours of notification by Owner. Data in manuals shall be neat, clean copies, with operation and maintenance instructions for each item of equipment installed. Drawings shall be accordion

folded. An index shall be provided with all contents listed in an orderly presentation with bookmarks according to specification section.

- B. Number of Copies: A preliminary set of the O&M Manuals shall be submitted for approval. After this set has been approved, one hard copy and 3 electronic copies on USB flash drives shall be submitted.
- C. Hard Copy Binding: Organize operating and maintenance data into suitable sets of manageable size. Copies shall be submitted in 3-ring binders. Covers shall include the name of the Job, Owner, Architect, Engineer, Contractor, and the year of completion. The back edge of the binder shall include a label with the name of the Job, the Owner and the year completed. Each copy shall have a typewritten index and tabbed dividers between equipment categories. Binders to be no more than 80% full; binders that are over 80% full will be sent back for dividing into additional binders.

1.17 CERTIFICATIONS

- A. Provide written certification that work has been fully completed in strict accordance with Plans and Specifications and request final inspection.
- B. Provide written certification that Contractor will replace materials and workmanship that prove defective for one (1) year after date of acceptance or extended warranty as listed in individual sections.
- C. Provide written certification of inspection from the Authority Having Jurisdiction, stating that all work has been inspected, accepted, and approved as complying with existing governing ordinances and codes.
- D. Provide written certification that Owner's representative has been fully instructed in the operation and function of all mechanical systems.
- E. Provide copies of certification in the O & M Manuals.

1.18 DOCUMENTS

- A. Present the following documents to the Owner's representative prior to final acceptance of buildings. Final payment of the Contract will be contingent upon receiving these documents:
 - 1. Record (as-built) drawings.
 - 2. Operation and Maintenance Manuals (3 sets).
 - 3. Final material submittal.
 - 4. Warranties and Extended Warranties.
 - 5. Approved Final Balancing logs.
 - 6. Final certificates of inspection and code compliance.
 - 7. All applicable forms required by these specifications.
 - 8. Provide copies of the above documents in O & M Manuals.

1.19 WARRANTY

- A. All mechanical equipment and systems including Heating, Ventilating, and Air Conditioning systems, including controls and all parts thereof, shall be warranted (parts and labor), for a period of one (1) year after the date of substantial completion as determined by the documentation.
- B. Contractor shall repair or replace to the satisfaction of the Owner's representatives any defective material, equipment, or poor workmanship, which may show itself during this warranty period.

1.20 DEMOLITION

- A. Complete all Demolition Work as shown on the drawings and where required to install the new work shown on the drawing and as specified herein. The work will be scheduled in stages and the contractor must phase out his work in stages (with advance coordination with the Owner's Representative) to cause as little disruption to the building occupants as possible.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 SUBMITTAL

- A. Owner's representative's review of submittals is for general conformance with the design concept and Contract Documents. Marking or comments shall not be construed as relieving the Contractor from compliance with the project Plans and Specifications, nor departures therefrom. The Contractor remains responsible for details and accuracy for confirming and correlating all quantities and assembly and for safe performance of his work.

3.02 DEMOLITION

- A. Complete all demolition, wrecking, and removal of work necessary for the completion of the work shown on the drawings and/or as specified. All mechanical materials designated for removal shall be removed from site and disposed of legally. The Owner shall be offered the right of first refusal for demolished mechanical equipment and components. Loading and disposal as described here shall be at no expense to the Owner. Care shall be taken in making openings in walls and roofs as not to damage any of the existing walls, floors and roofs. Where holes are left from removal of mechanical equipment this Contractor shall be responsible for patching same to match the surrounding finishes unless otherwise shown or specified.
- B. Debris: Allow no debris to accumulate at, or in buildings, on grounds, streets, and/or walks. Haul away from site as soon as removed. Allow no debris to remain in the building and/or outside the building overnight. Legally dispose of at Contractor's expense.
- C. Building Protection: Protect the inside of the building from foul weather by covering wall and roof openings.
- D. Asbestos Materials: Notify the Owner's representative if the presence of asbestos is suspected. Immediately stop work in that area.
- E. Structural Members: Check with, and gain approval from, the Owner's representative prior to cutting or altering structural members.

END OF SECTION

SECTION 23 00 20

BASIC MATERIALS AND METHODS FOR HEATING, VENTILATING, AND AIR-CONDITIONING

PART 1 GENERAL

1.01 WORK INCLUDES

- A. General requirements for basic materials and methods.

1.02 REFERENCES

- A. American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE).
- B. "Seismic Restraint Manual Guidelines for Mechanical Systems" by Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA).

PART 2 PRODUCTS

2.01 GENERAL

- A. See specific sections for this requirement.

2.02 PRODUCT TESTING

- A. Any piece of equipment used in this project and hereinafter specified which, by its nature, requires electrical connection, such as fans, pumps, air handling equipment, etc., must be provided with an approval label from one of the agencies hereinafter listed.
- B. Approval of agency must be for the total package; approval of individual components not acceptable. All labels must be located outside of equipment and shall be visible to inspector. Comply with all requirements of RCW 19.28.010 and NEC Sections 90-7 and 110-3 (1993).
- C. It shall be the responsibility of the Mechanical Contractor or the equipment supplier to meet the requirements of this section. Any agency costs to provide an appropriate label for a piece of equipment must be included in this bid. Failure by Mechanical Contractor or supplier to obtain approval labels prior to bid shall be sufficient cause for the Mechanical Contractor/supplier to obtain all such labels at no additional cost to Owner. The following is a list of approval testing laboratories:
 - 1. Underwriters Laboratories, Inc., www.ul.com
 - 2. Canadian Standards Association, www.csagroup.org
 - 3. American Gas Association, www.aga.org.
 - 4. Factory Mutual Systems, www.fmglobal.com
 - 5. MET Electrical Testing, www.metlabs.com
 - 6. Intertek Testing, www.intertek.com

2.03 DAMAGED OR REJECTED MATERIALS

- A. Remove from the site immediately.

2.04 STARTERS AND DISCONNECTS

- A. All starters shall be provided and installed by Electrical Contractor unless otherwise noted.
- B. All disconnects shall be provided and installed by Electrical Contractor unless otherwise noted.
- C. The Mechanical Contractor shall coordinate with the Electrical Contractor and provide voltage, phase, horsepower, and amperage for all of the mechanical equipment being provided, based on approved submittals and the actual equipment being provided.
- D. Starters, disconnects, and VFDs shall be provided in a timely manner, so as to not delay the Electrical Contractor's work.

2.05 FIRE INTEGRITY

- A. Manufacturers
 - 1. 3M Fire Products
 - 2. Holdrite

3. Approved equal
- B. The penetration sealing systems shall be provided with F-Rating and/or T-Rating as required by IBC Section 714.3 and 714.4 Penetrations include the following:
 1. Through-penetration firestopping in fire-rated construction.
 2. Construction-gap firestopping at connections of the same or different materials in fire-rated construction.
 3. Construction-gap firestopping occurring within fire-walls, floor or floor-ceiling assemblies.
 4. Construction-gap firestopping in smoke partitions.
 5. Through-penetration smoke stopping in smoke partitions.
 6. Construction-gap smoke stopping in smoke partitions.
 7. All ductwork and piping penetrating mechanical spaces, mechanical mezzanines, mechanical lofts, mechanical boiler rooms, or other mechanical spaces, shall be fire caulked, even if the walls are not rated. Visible piping penetrations shall be covered by split chrome-plated floor and ceiling plates. Visible ductwork penetrations shall be covered by painted angle-iron frames.
- C. All products shall be listed in Underwriters Laboratory Fire Resistance Directory. Firestopping for penetrations and voids shall be UL-tested systems.
 1. Through-penetration firestop devices (XHCR).
 2. Fire resistance ratings (BXUV).
 3. Through-penetration firestop systems (XHEZ).
 4. Fill, void or cavity material (XHHW).
- D. All material shall be tested per American Society for Testing and Material Standards, ASTM E814: Standard test method for fire tests of through-penetration firestops.
- E. Firestopping for penetrations and voids shall be UL-tested systems.

2.06 HANGERS

- A. Manufacturers:
 1. Grinnell
 2. Michigan Hanger
 3. Tolco
 4. PHD
 5. Anvil
 6. Holdrite
 7. Approved equal
- B. Provide all anchors, hangers and all supports for piping and equipment included in contract.
- C. It is the responsibility of the Contractor to provide an adequate pipe suspension system in accordance with recognized engineering practices, using standard, commercially-accepted pipe hangers and accessories.
- D. All pipe hangers and supports shall conform to the latest requirements of ASME B31.1 Code for Pressure Piping, and Manufacturers Standardization Society Documents MSS SP-58 and MSS SP-69.

2.07 INSERTS AT HANGERS AND SUPPORTS

- A. Manufacturers:
 1. Holdrite
 2. Buckaroos
 3. Cooper
 4. Metro Supply Company
 5. Value Engineered Products, Inc.
 6. Hydra-Zorb Klo-Shure 7-series or 8-series strut-mount and Clevis
 7. Approved equal

- B. Insulated pipe inserts shall be provided at hanger, support, anchor, and guide locations on piping requiring insulation. The insert is to consist of either hydrous calcium silicate or polyisocyanurate foam insulation (urethane) encircling the entire circumference of the pipe with a 360-degree PVC (1/16" thick) or galvanized steel jacket (20 gauge minimum). Inserts are to be installed on piping during piping installation, by the Piping Contractor. Provide continuous insulation vapor barrier. Seal penetrations in insulation at hangers, supports, anchors, and other projections with vapor retarder mastic.
- C. For elastomeric insulation, provide Hydra-Zorb Klo-Shure 7-series 8-series strut-mount or Clevis Hanger Insulation Couplings or approved equal.
- D. Insulation and covering shall meet the flame spread index and smoke developed index as noted in the International Building Code.
- E. Insert thickness shall match Code-required insulation thickness as a minimum.
- F. Provide pipe covering protection saddle for piping on rollers; Anvil figure 160 through 166A or approved equal.
- G. Inserts for piping in plenums shall have appropriate flame/smoke spread rating.

2.08 SUPPORT FOR EXTERIOR PIPING

- A. System shall be securely mounted to building with unitstrut or other support material.
- B. Secure piping to the support system.

2.09 ELECTRIC MOTORS

- A. Minimum efficiencies of electric motors shall comply with the Washington State Energy Code.

2.10 ACCESS DOORS AND PANELS

- A. Manufacturers:
 - 1. Jay R. Smith
 - 2. Milcor
 - 3. Mifab
 - 4. Approved equal.
- B. 16 gauge steel door and frame with concealed hinge and cylinder lock. Provide matching latches/locks keyed the same for multiple panels in a project. When "B" dimension is 24" or more, provide additional latches at the top and bottom of door. Provide finish and material as noted in Part 3 – Execution.

2.11 VIBRATION ISOLATION

- A. Manufacturers:
 - 1. Kinetics Noise Control, Inc.
 - 2. Mason Industries
 - 3. Amber-Booth
 - 4. I.S.A.T.
 - 5. Flexicraft
 - 6. Twin City Hose
 - 7. Approved equal.
- B. General
 - 1. Size anchoring bolts to withstand lateral seismic shear and isolate bolts from direct contact with structure using bolt isolation washer and bushing.
 - 2. Anchor equipment to structure.

PART 3 EXECUTION

3.01 LAYING OUT WORK

- A. Locate all general reference points as established by the General Contractor and take such action as is necessary to prevent their destruction; lay out work and be responsible for all lines,

elevations, grading for utilities and other work executed under the Contract. Exercise proper precautions to verify figures shown on drawings, before laying out work and be responsible for any errors resulting from failure to exercise such precaution. The coordination of the utility installation with the final site grading and elevation by the General Contractor shall be the responsibility of this contractor. Locate existing utility lines which will be affected by the building location before any footing work begins. Report conflicts with the Plans to the Owner's representative for adjustment before proceeding with the work. Failure to follow this instruction will result in the contractor being required to alter his work at his own expense.

3.02 ELECTRICAL WORK

- A. All electrical work performed under this Section of the Specifications shall conform to all applicable portions of the Electrical Section of the Specifications, and shall conform to all applicable codes.

3.03 WORKMANSHIP

- A. Furnish and install all equipment for a neat and finished appearance. If, in the judgment of the Owner's representative, any portion of the work has not been installed in a workmanlike manner, or has been left in a rough, unfinished manner, Contractor will be required to remove and reinstall the equipment, and patch and paint surrounding surfaces in a manner satisfactory to the Owner's representative, without any increase in cost to the Owner.

3.04 PIPE SLEEVES

- A. General: Provide pipe sleeves for piping passing through foundations, walls, floors, partitions, and roof to allow piping to pass freely through.
- B. Building Walls (Above Grade) - Existing Construction: Where piping passes through concrete or masonry walls, provide galvanized sheet metal sleeves. Where piping passing through is insulated, the sleeve shall be large enough to permit the covering to pass through. Where the wall is a fire separation, the opening between the sleeve and insulation shall be sealed with intumescent material; see Paragraph "Fire Integrity" in this section. The wall around sleeves shall be patched to original finish, and covered with Chrome plated floor and ceiling plates

3.05 WALL/FLOOR PLATES AND ESCUTCHEONS

- A. Where piping or ductwork passes through any wall, floor or ceiling, it shall be fitted with stainless steel angle/trim rings, with suitable set screws or other approved holding device. Where extended sleeves are necessary, the plates shall be of sufficient depth to cover the sleeves.

3.06 HANGERS AND SUPPORTS

- A. General
 - 1. Submittals: The Contractor shall submit, prior to installation, the following information and data for approval.
 - a. Data Sheets on all cataloged items to be used.
 - b. Sketches covering all specially designed hanger assemblies and fabrications.
 - 2. Where thermal movement will occur, the hanger assembly must be capable of supporting in all operating conditions. Accurate weight balance calculations shall be made to determine the supporting force at each hanger location, in order to prevent excessive stress on piping, ductwork, and/or equipment.
 - 3. Where piping or ductwork is to be supported from building steel, beam clamps shall be used. Beam clamp selection shall be for the required load and the configuration of the steel at the point of attachment. Drilling holes in the steel for hanger rod will not be permitted unless approved by the Structural Engineer. Use only adjustable side beam clamps (Type 25); standard beam clamps are not acceptable.
 - 4. Angle Clips: Where piping or ductwork is to be supported from building wood structure, angle clips shall be used with lag bolts sized to support the load in shear. Any attachment to wooden structural members shall be subject to the approval of the Structural Engineer.
 - 5. Hanger Rods: Hanger rod size shall be selected on the basis of loading from the following table:

3/8"	610#
1/2"	1130#
5/8"	1810#

6. Hangers shall be subject to tensile loading only. Where lateral or axial movement is anticipated, use suitable linkage in hanger rod to permit swing. DO NOT BEND RODS.
7. All rods shall be electro-plated to prevent corrosion.
8. All rods shall be double-nutted with lock washer and cut washer, on both ends if applicable, and excess rod on the bottom shall be cut flush and ground for safety.
9. Brackets and Racks: Where piping or ductwork is run adjacent walls or steel columns, welded steel brackets shall be used as base supports. Multiple pipe racks or trapeze hangers shall be designed and fabricated to suit conditions.
10. Auxiliary Steel: All auxiliary steel necessary for the installation of the hangers and supports shall be designed in accordance with the AISC Steel Handbook, furnished by the Mechanical Contractor, and shall receive one shop coat of primer paint.

B. Hangers for Piping:

1. Riser Clamps (Vertical Piping): Piping shall be supported at each floor with a riser clamp or at sufficient intervals to carry the weight of the piping and that of its contents. Stacks shall be supported at their base by a concrete pier or by a suitable hanger located on the horizontal run, close to the riser. Riser clamp extensions shall rest on the building structure where possible; auxiliary steel supports shall be provided where it is impractical to rest directly on the building structure.

C. Hangers for Ductwork:

1. Reference and comply with SMACNA HVAC Duct Construction Standards - Metal and Flexible Table 4-1 - Rectangular Duct Hangers Minimum Size, and Table 4-2 - Minimum Hanger Sizes for Round Duct for the following:
 - a. Strap and Rod Sizes
 - b. Hanger Spacing
2. Steel Cables
 - a. Galvanized-Steel Ducts: Galvanized steel complying with ASTM A 602
 - b. Stainless-Steel ducts: Stainless steel complying with ASTM A 492.
 - c. End Connections: Cadmium-plate steel assemblies with brackets, swivel, and bolts designed for duct hanger service, with an automatic locking and clamping device.
3. Duct Attachments: Sheet-metal screws, blind rivets, or self-tapping metal screws, compatible with duct materials.
4. Support materials shall match ductwork materials (i.e. provide stainless steel support materials for stainless steel duct, galvanized steel support materials for galvanized steel ducts, and aluminum support materials for aluminum ducts).
5. Hanger and Support Installation:
 - a. Reference Table 4-1 - Rectangular Duct Hangers Minimum Size, and Table 4-2 - Minimum Hanger Sizes for Round Duct.
 - b. Support vertical ducts with steel angles or channel secured to the sides of the duct with welds, bolts, sheetmetal screws, or blind rivets; support at each floor and at a maximum interval of 16 feet.
 - c. Install upper attachments to structure. Select and size upper attachments with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

3.07 CUTTING AND PATCHING

- A. All necessary cutting and patching of existing structures necessary for installation of mechanical work shall be done by the Mechanical Contractor as directed by the Owner's representative.
- B. All surfaces must be patched upon completion of the work to the satisfaction of the Owner's representative. Final finish of all patched surfaces shall be done per Architectural finish schedule, by the General Contractor. All excavation necessary for the Mechanical Contractor shall be

performed by the MC. Surfaces shall be patched as hereinbefore specified and all backfilling shall be done in accordance with requirements of this section and other related notes in the Contract Documents. If none specified, restore to original condition.

3.08 ACCESSIBILITY

- A. Locate valves, damper operators, etc., so as to be easily accessible in mechanical spaces or through access panels, specified hereinafter. Otherwise, obtain Owner's representative's approval of location.
- B. Any equipment requiring maintenance clearances for servicing of filters, motors, compressors, etc., shall be carefully coordinated to avoid servicing problems. Failure of contractor to comply with this requirement shall be sufficient cause for contractor to make all necessary changes at no cost to the Owner. To avoid problems with interpretation of the NEC, allow 42" for all electrical clearances.

3.09 ACCESS DOORS AND PANELS

- A. Locations of panels shall be carefully selected during construction, so as not to be located behind cabinets, etc. Coordinate closely with the Architectural and Electrical Plans before installing panels.
- B. Access panels shall be stainless steel, or painted to match surrounding conditions.
- C. Verify with the Owner's representative location and finish prior to ordering; failure to get the Owner's representative's approval may result in replacement of access panels at the Mechanical Contractor's expense. Minimum size of access doors is 12" x 12"; actual size depends on the specific circumstance, and panel shall be large enough to accomplish replacement or repair of the item requiring access. The Owner's representative shall have the final say on whether or not the access is of sufficient size.
- D. Provide access panels for all concealed valves for all piping.
- E. Doors shall have cylinder lock latches, all keyed alike.
- F. Provide fire-rated access doors for one-hour or two-hour rated walls and ceilings; units shall be UL labeled.

3.10 MECHANICAL ACCESSES

- A. Provide suitable access to all mechanical equipment requiring servicing, maintenance, replacement, or repair. In concealed spaces where access has not been provided by the Architect by means of doors, hatchways, walkways or other means, provide wall or ceiling access doors of a type suitable to the Owner's representative, sized to provide easy access to all equipment. Location of such doors shall be coordinated with the work of the other trades, to avoid conflict therewith, and such locations shall be approved by the Owner's representative prior to installation of access panels.
- B. In addition to building access openings, provide access panels on ducts where required to service fire dampers, damper operators, and other associated equipment. All access doors providing access to mechanically furnished panels, control boxes and filter compartments shall be provided with fully-hinged, easily-opened access doors. Minimum size is 12" x 12", unless access area prevents that size. Consult Owner's representative prior to installing smaller sizes.
- C. Maintain 6'-8" minimum head room in all Mechanical spaces, and 8' in all other spaces. If minimum spacing is not possible, obtain the Owner's representative's permission, in writing, to install piping/ductwork/equipment at lower heights. Where ductwork is approved to be installed below 6'8" in mechanical spaces, utilize closed cell foam to provide corner/duct head protection.

3.11 PAINTING, TAGS, ETC.

- A. Field painting of all mechanical equipment, piping etc., located in and exposed in occupied spaces, shall be by the General Contractor. See Architectural painting specification.

- B. Identification Tags: Provide identification tags for each main shutoff and control valve throughout the building indicating the system served. Tags shall be black phenolic plastic with white engraved inscription attached with chrome chain.
- A. Mechanical Room: Provide valve tag lists laminated in mechanical room. Provide matching floor plan diagram showing locations for each valve on an overall floor plan. Locate as directed by the Owner's representative.
- C. Each major item of Mechanical Equipment shall be provided with the name of the item, i.e., Exhaust Fan No. 2, etc., in labels of black phenolic plastic with white engraved inscription. Minimum size of lettering is 1" with a maximum of 2". Select appropriate sizes for the size of the equipment being labeled. Align labels with edges of equipment and locate labels so as to be visible.

3.12 TEST PLUGS AND GAUGES

- A. Pressure or temperature test plugs shall be installed on inlet and discharge of all pumps, coils, even if they are not shown on Plans.
- B. Pressure or temperature test plugs shall be installed adjacent all temperature and/or pressure sensors, even if they are not shown on Plans.
- C. P & T test plugs included on other devices that serve the same purpose and that provide the same information are acceptable; duplicates are not required.

3.13 FIRE INTEGRITY

- A. All penetrations of fire-rated walls, ceilings, roofs or floors via ductwork, piping and air terminals must be protected by fire dampers, fire/smoke dampers, appropriately-rated assemblies, and caulking to maintain integrity of structure.

3.14 CLEANING UP

- A. Comply with requirements of the General Specifications.
- B. Ducts shall be maintained as clean as possible during erection, and shall be blown clean before the building painting operations are started. Ducts and apparatus casings shall be thoroughly cleaned before fans and filters are operated. Installed ductwork and equipment openings shall be sealed to prevent contamination of construction dust, debris and moisture. Uninstalled ductwork and equipment shall be securely covered to prevent contamination or the insulation getting wet. Uninstalled ductwork and equipment shall be stored on pallets or dunnage that prevents water reaching the ductwork. If ductwork or equipment is found to be dirty or wet, this contractor shall be responsible for replacing such items. Contaminated or wet duct shall be spray painted with high visibility paint and removed from the site immediately. After equipment has been used for any purpose, such as adjusting, testing, or temporary ventilation, filters shall be replaced and exhaust/return ducts shall be cleaned. Use temporary filters with 80% to 85% filter efficiency during construction. Cover all openings with temporary filters if startup, test and balance, or commissioning starts prior to all work being completed in the building.
- C. Remove tags, shipping labels, etc., from all ductwork in exposed areas, whether ductwork is painted or not.

3.15 CAULKING

- A. Caulk all openings and flash around all piping, equipment, and ductwork passing through roof, floor, and walls. All caulking shall be water resistant. See also paragraph "Fire Integrity" for rated walls, ceilings, roofs, or floor penetrations.
- B. All piping and ductwork penetrations of walls, ceilings, and floors shall be caulked. A chrome-plated steel escutcheon plate shall be installed at each visible piping penetration of walls, ceilings, or floors. All duct penetrations of walls, ceilings or floors shall be flashed with 3" x 3" 18 gauge galvanized sheet metal angle for concealed ducts, and stainless steel angle for exposed ducts.

3.16 OPERATION OF EQUIPMENT AND SYSTEMS

- A. Contractor is responsible during all periods of balancing and testing. Provide temporary utilities as required.

3.17 TESTS, ADJUSTMENTS AND INSPECTION

- A. Test all work thoroughly and systematically, both during construction and after completion. Notify Owner's representative 48 hours in advance of all tests. Tests shall be maintained until approved. Tests shall be as hereinafter specified.
- B. The Contractor shall test the completed installation as in regular service. Any defects or imperfections that may show up are to be promptly corrected. The Contractor shall guarantee the entire system and all parts thereof for a period of one year from date of final acceptance. The Contractor shall repair or replace any part which may show signs of failure during that time, if such failure, in the opinion of the Owner's representative, is due to imperfections in material or to improper workmanship.
- C. No system, whether prescribed for testing or not, shall be covered or concealed below ground, in walls, in ceiling spaces, or generally from ease of viewing, without first notifying the Owner's representative. Failure to notify the Owner's representative for inspection of concealed systems shall be cause to require this contractor to uncover and recover such systems at no additional cost to Owner.
- D. A log of all tests shall be kept. The log shall note, dates, time of day test started, system or portion of system tested, length of test, test results, and who witnessed the test (AHJ, Owner's representative, or GC). Contractor shall insert legible name of witnesses. Contractor to submit a copy of the contractor's test log monthly to the Owner's representative.
- E. Review the project to determine when final inspection is appropriate and advise Owner's representative. Mechanical Contractor is required to complete his work before requesting final inspection.
- F. Conduct refrigeration leak test on all DX equipment prior to installation on or in buildings.

3.18 FINAL INSPECTION

- A. This contractor shall thoroughly review and inspect the project to determine when final inspection is required, and shall so advise the Owner's representative. It shall be understood that the work is to be essentially complete. If such is not the case and more than one final inspection and one backcheck are necessary, this Contractor may be billed for the additional backchecks at the then governing rate for the personnel involved. The final inspection punchlist shall be legibly signed on a copy of the punch list by a person responsible for the trade involved, and transmitted to the Owner's representative, before a backcheck will be scheduled.

3.19 PROTECTION AND CLEANING

- A. All equipment and material installed by this contractor shall be properly protected from damage during the course of construction.
- B. In attic or other spaces where piping such as piping has been installed at floor level and interfere with foot traffic, the Mechanical Contractor shall provide covers to protect this piping. Wood or other such material will be acceptable. Where duct plenums or duct runs interfere with normal traffic patterns of maintenance personnel, the sheet metal contractor shall provide a wooden "bridge" over the ducts to prevent damage.
- C. Protect walking paths in mechanical spaces. Maintain 6'-8" headroom minimum, for all piping and ductwork. If required clearance is not possible, obtain permission from the Owner's representative to violate the above requirement, and comply with protective measures required.

3.20 SPECIAL PROTECTION

- A. Exercise maximum precaution to protect the building and equipment from damage of any kind, and in particular, prevent water and dust seepage into new equipment.

3.21 BALANCING WORK

- A. Provide Testing, Adjusting and Balancing as required in this section of the specification.

3.22 INSTRUCTION PERIODS FOR OWNER'S PERSONNEL

- A. Scope: Following installation of mechanical work, have representatives of installation tradesmen conduct demonstrations and instruction periods to point out locations of servicing points and required points of maintenance to Owner's representatives.
- B. General Description of Instruction Periods: Each period shall include preliminary discussion and presentation of information from maintenance manuals with appropriate references to drawings, followed by tours of building areas explaining maintenance requirements, access methods, servicing and maintenance procedures, equipment cleaning procedures, temperature control settings, and available adjustments.
- C. Scheduling of Instruction Periods: Notice of Contractor's readiness to conduct such instruction and demonstration shall be given to the Owner's representative at least two weeks prior to the instruction periods, and agreement reached as to the date at which the instruction periods are to be performed. Advise Owner's representative two weeks prior to date when ready to conduct instruction and demonstrations; receive approvals of proposed date prior to making final arrangements.
- D. Schedule an additional instruction period for the off-season. That is, if initial instruction period takes place during the heating season, schedule another during the cooling season, or vice versa.

3.23 ON-SITE OBSERVATIONS AND SAFETY MEASURES

- A. During its progress, all work shall be subject to observation by the Owner's representative, and of the National Board of Fire Underwriters, State and Local Inspectors. The Engineer has not been retained or compensated to provide design and construction review services relating to the Contractor's safety precautions or to means, methods, techniques, sequences or procedures required for the Contractor to perform his work. The Contractor will be totally responsible for conditions of the jobsite, including safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal working hours. The duty of the Owner's representative to conduct construction observations of the Contractor's performance is not intended to include review of the adequacy of the Contractor's safety measures in, on, or near the construction site. It shall be the Contractor's responsibility to comply with "Safety and Health Regulations for Construction" in the Federal Register by the U.S. Department of Labor. Contractor shall be responsible for providing all such safety measures and shall consult with the State and/or Federal Safety Inspector for interpretation whenever in doubt as to whether he is or is not in compliance with State and/or Federal regulations. Furthermore, the Contractor distinctly assumes all risk or damage or injury to any persons or property wherever located resulting from any action or operation under this contract or in connection with the work.

3.24 CONTINUITY OF BUILDING UTILITIES AND SHUTDOWNS

- A. General: Continuity of utilities services in the building shall be maintained at all times as required to provide heat, water, lighting, and power to all portions of the building. Utility systems shutdowns required for extensions, alterations or connections shall be carefully coordinated with the owner with a minimum of 72hrs advanced notice.
- B. Costs: The Contractor shall include in his bid proposal, all costs associated with utilities shutdowns. No extra payment will be made for overtime work, schedule changes, or failure to complete utilities connections within authorized shutdown periods.

3.25 DRAFT STOPS

- A. It shall be the responsibility of each contractor performing his trade to verify with Architectural Plans and to maintain the integrity of draft stops, whenever his work requires penetration of these areas. Patch as required to maintain integrity of draft stops.

3.26 SYSTEM STARTUP

- A. Provide the services of manufacturer's field representative for starting and testing equipment.

- B. Prepare a manufacturer's startup report, and turn over to the Owner's representative and Commissioning Agent.

3.27 COMMISSIONING

- A. This Contractor will be required to commission the systems.
- B. As a minimum, the following Mechanical Items shall be commissioned, see Commissioning section.
 - 1. All HVAC equipment.

END OF SECTION

SECTION 23 05 93
TESTING, ADJUSTING, AND BALANCING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Testing, adjustment, and balancing of air systems.
- B. Measurement of final operating condition of HVAC systems.

1.02 REFERENCE STANDARDS

- A. AABC MN-1 - AABC National Standards for Total System Balance; Associated Air Balance Council.
- B. ASHRAE Standard 111 - Practices for Measurement, Testing, Adjusting and Balancing of Building Heating, Ventilation, Air-Conditioning, and Refrigeration Systems; American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.
- C. NEBB (TAB) - Procedural Standards for Testing Adjusting Balancing of Environmental Systems; National Environmental Balancing Bureau.
- D. SMACNA (TAB) - HVAC Systems Testing, Adjusting, and Balancing; Sheet Metal and Air Conditioning Contractors' National Association.
- E. Reference standards shall be the latest revision as accepted by the local Authority Having Jurisdiction.

1.03 SUBMITTALS

- A. Qualifications: Submit name of Testing, Adjusting and Balancing agency and TAB supervisor within 30 days after award of the Mechanical Contract by the General Contractor. Include a list of the last 12 projects completed with a list of the respective Owner's representatives and a contact phone number for each.
- B. TAB Plan: Submit a written plan indicating the testing, adjusting, and balancing standard to be followed and the specific approach for each system and component.
- C. Control System Coordination Reports: Communicate in writing to the controls installer all setpoint and parameter changes made or problems and discrepancies identified during TAB that affect, or could affect, the control system setup and operation.
- D. Progress Reports. Provide preliminary/hand-written balance report no later than one (1) week after completion of work.
- E. Final Report: Indicate deficiencies in systems that would prevent proper testing, adjusting, and balancing of systems and equipment to achieve specified performance.
 - 1. Submit draft copies of report for review prior to final acceptance of Project. Provide final copies for Owner's representative and for inclusion in Operating and Maintenance manuals.
 - 2. Provide reports complete with index page and indexing bookmarks. Include set of reduced drawings with air outlets and equipment identified to correspond with data sheets, and indicating thermostat locations.
 - 3. Include actual instrument list with manufacturer name, serial number, and date of calibration.
 - 4. Form of Test Reports: Use report format recommended by TAB standard. If none of these apply, follow ASHRAE Standard 111.
 - 5. Units of Measure: Report data in I-P (inch-pound) units only.
- F. Project Record Documents: Record actual locations of flow measuring stations and balancing valves and rough setting.

1.04 QUALITY ASSURANCE

- A. Perform work in accordance with applicable codes.

- B. M.C. to provide conformed construction drawings and specifications to the TAB firm, if available. If not available, issue the same drawings that are being provided to the other Subcontractors, along with any RFIs or Change Orders that may affect their work. The M.C. is responsible to keep the TAB firm up to date with pertinent contract documents and correspondence.
- C. M.C. to provide approved equipment submittals and project schedule for the use by the TAB subcontractor.

1.05 WARRANTY

- A. Include a warranty for 24 months after final acceptance by the Owner, during which time the Owner may request a recheck, or resetting of any outlet, coil or device listed in the project test report. TAB contractor to contact other project subcontractors if their technical assistance is required to make any test or adjustments required. Maximum number of rechecks shall not exceed a yearly total of 5% of the entire project. However, if the balance reports are proved to be inaccurate, the Owner may request the entire project be re-balanced during the warranty period. See paragraph Commissioning in this Section for recheck and failure criteria. The above warranty shall be included in the original contract bid proposal.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS

- A. Perform total system balance in accordance with one of the following:
 - 1. AABC MN-1, AABC National Standards for Total System Balance.
 - 2. ASHRAE Standard 111, Practices for Measurement, Testing, Adjusting and Balancing of Building Heating, Ventilation, Air-Conditioning, and Refrigeration Systems.
 - 3. NEBB Procedural Standards for Testing Adjusting Balancing of Environmental Systems.
 - 4. SMACNA HVAC Systems Testing, Adjusting, and Balancing.
- B. Test and balance all new equipment and systems Including:
 - 1. New Supply/Exhaust fans in attic
 - 2. Heat recovery pump and corresponding coils in attic
 - 3. Hallway diffusers
 - 4. Exhaust grilles in living units
 - 5. New heat pumps and associated ductwork
- C. Begin work after completion of systems to be tested, adjusted, or balanced and complete work prior to Substantial Completion of the project.
- D. TAB Agency Qualifications:
 - 1. Certified by one of the following:
 - a. AABC, Associated Air Balance Council: www.aabchq.com; upon completion submit AABC National Performance Guaranty.
 - b. NEBB, National Environmental Balancing Bureau: www.nebb.org.
 - c. TABB, The Testing, Adjusting, and Balancing Bureau of National Energy Management Institute: www.tabbcertified.org.
- E. TAB Supervisor Qualifications: Professional Engineer licensed in the State in which the Project is located.
- F. TAB Team Members: Submit their qualifications along with the Companies qualifications and the TAB Supervisor qualifications. TAB team approved to accomplish work on this contract, must be full-time employees of the TAB agency. No other personnel are allowed to do TAB work on this contract.
- G. Pre-Qualified TAB Agencies:
 - 1. Neudorfer Engineering (206) 621-1810.
 - 2. AirTest (425) 313-0172

3. United (800) 213-2195

3.02 EXAMINATION

- A. Verify that systems are complete and operable before commencing work. Ensure the following conditions:
 - 1. Systems are started and operating in a safe and normal condition.
 - 2. Temperature control systems are installed complete and operable.
 - 3. Proper thermal overload protection is in place for electrical equipment.
 - 4. Final filters are clean and in place. If required, have HVAC contractor replace or install temporary media in addition to final filters.
 - 5. Duct systems are clean of debris.
 - 6. Fans are rotating correctly.
 - 7. Fire and volume dampers are in place and open.
 - 8. Air coil fins are cleaned and combed.
 - 9. Access doors are closed and duct end caps are in place.
 - 10. Air outlets are installed and connected.
 - 11. Confirm duct system leakage is minimized. Have HVAC contractor coat or recoat joints that may not be up to SMACNA standards prior to testing.
 - 12. Confirm pumps and other equipment have been started by factory-trained personnel where required by specification.
 - 13. Pumps are rotating correctly.
 - 14. Service and balance valves are open.
- B. Submit field reports. Report defects and deficiencies that will or could prevent proper system balance.
- C. Beginning of work means acceptance of existing conditions, or that a letter allowing revised conditions has been received by the TAB contractor.
- D. The TAB contractor shall exercise care while performing his work so as to avoid damaging the work of other trades, particularly paint and ceiling tile. If damage is incurred by the Test and Balance Contractor, repairs shall be made at their expense.

3.03 ADJUSTMENT TOLERANCES

- A. Air Handling Systems: Adjust to within plus or minus 10% of design for supply, return, and exhaust systems.
- B. Air Outlets and Inlets: Adjust total airflow to within plus or minus 10% of design to space. Adjust outlets and inlets in space to within plus or minus 10% of design.

3.04 RECORDING AND ADJUSTING

- A. Field Logs: Maintain written logs including:
 - 1. Running log of events and issues.
 - 2. Discrepancies, deficient or uncompleted work by others.
 - 3. Contract interpretation requests.
 - 4. Lists of completed tests.
- B. Ensure recorded data represents actual measured or observed conditions.
- C. Permanently mark settings of valves, dampers, and other adjustment devices allowing settings to be restored. Set and lock memory stops.
- D. Mark locations where traverse and other critical measurements were taken on the Plans and cross reference the location in the final report.
- E. After adjustment, take measurements to verify balance has not been disrupted or that such disruption has been rectified.
- F. Leave systems in proper working order; replace belt guards, close access doors, close doors to electrical switch boxes, and restore thermostats to specified settings.

- G. At final inspection, recheck random selections of data recorded in report. Recheck points or areas as selected and witnessed by the Owner's representative and Owner's Commissioning Agent.

3.05 AIR SYSTEM PROCEDURE

- A. Adjust air handling and distribution systems to provide required design supply, return, and exhaust air quantities at site altitude.
- B. Make air quantity measurements in ducts by Pitot tube traverse of entire cross sectional area of duct.
- C. Measure air quantities at air inlets and outlets.
- D. Adjust distribution system to obtain uniform space temperatures free from objectionable drafts and noise.
- E. Use volume control devices to regulate air quantities only to extent that adjustments do not create objectionable air motion or sound levels. Effect volume control by duct internal devices such as dampers.
- F. Provide system schematic with required and actual air quantities recorded at each outlet or inlet.
- G. Measure static air pressure conditions on air supply units, including filter and coil pressure drops, and total pressure across the fan. Make allowances for 50% loading of filters.
- H. Adjust outside air automatic dampers, outside air, return air, and exhaust dampers for design conditions.
- I. Measure performance capacity tests for all coils, confirm manufacturers capacities.
- J. Measure building static pressure and adjust supply, return, and exhaust air systems to provide required relationship between each to maintain approximately 0.05" positive static pressure near the building entries.
- K. At completion, be sure all test holes in low pressure duct have pressure sealing plugs installed; duct tape is not allowed. Test holes in high pressure duct shall employ threaded and capped duct air fittings.

3.06 WATER SYSTEM PROCEDURE

- A. Adjust water systems to provide required or design quantities.
- B. Use calibrated Venturi tubes, orifices, or other metered fittings and pressure gauges to determine flow rates for system balance. Where flow metering devices are not installed, base flow balance on temperature difference across various heat transfer elements in the system.
- C. Adjust systems to provide specified pressure drops and flows through heat transfer elements prior to thermal testing. Perform balancing by measurement of temperature differential across the coils, in conjunction with air balancing. Report these temperatures on the TAB logs.
- D. Effect system balance with automatic control valves fully open to heat transfer elements.
- E. Effect adjustment of water distribution systems by means of balancing cocks, valves, and fittings. Do not use service or shut-off valves for balancing unless indexed for balance point.

3.07 MINIMUM DATA TO BE REPORTED

- A. Electric Motors:
 - 1. Manufacturer
 - 2. Model/Frame
 - 3. HP/BHP
 - 4. Phase, voltage, amperage from nameplate
 - 5. Phase, voltage, amperage from actual, no load conditions.
 - 6. RPM
 - 7. Service factor
 - 8. Starter size, rating, heater elements
 - 9. Sheave Make/Size/Bore

- B. V-Belt Drives:
 - 1. Identification/location
 - 2. Required driven RPM
 - 3. Driven sheave, diameter and RPM
 - 4. Belt, size and quantity
 - 5. Motor sheave diameter and RPM
 - 6. Center-to-center distance, maximum, minimum, and actual
- C. Pumps:
 - 1. Identification/number
 - 2. Manufacturer
 - 3. Size/model
 - 4. Impeller
 - 5. Service
 - 6. Design flow rate, pressure drop, BHP
 - 7. Actual flow rate, pressure drop, BHP
 - 8. Discharge pressure
 - 9. Suction pressure
 - 10. Total operating head pressure
 - 11. Shut-off, discharge and suction pressures
 - 12. Shut-off, total head pressure
- D. Vertical Heat Pumps:
 - 1. Identification/number
 - 2. Location
 - 3. Manufacturer
 - 4. Model number
 - 5. Serial number
 - 6. Supply/Return Airflow
 - 7. Condenser supply/exhaust airflow
- E. Heat Recovery Coils:
 - 1. Identification/number
 - 2. Location
 - 3. Service
 - 4. Manufacturer
 - 5. Air flow, design and actual
 - 6. Entering air DB temperature
 - 7. Entering air WB temperature
 - 8. Leaving air DB temperature
 - 9. Leaving air WB temperature
 - 10. Water flow, design and actual
 - 11. Water pressure drop, design and actual
 - 12. Entering water temperature, design and actual
 - 13. Leaving water temperature, design and actual
 - 14. Air pressure drop, design and actual
- F. Heating/Cooling Coils:
 - 1. Identification/number
 - 2. Location
 - 3. Service
 - 4. Manufacturer
 - 5. Air flow, design and actual
 - 6. Entering air temperature, design and actual
 - 7. Leaving air temperature, design and actual

8. Air pressure drop, design and actual
- G. Electric Duct Heaters:
 1. Manufacturer
 2. Identification/number
 3. Location
 4. Model number
 5. Design kW
 6. Phase, voltage, amperage
 7. Test voltage (each phase)
 8. Test amperage (each phase)
 9. Air flow, specified and actual
 10. Temperature rise, specified and actual
- H. Air Moving Equipment:
 1. Location
 2. Manufacturer
 3. Model number
 4. Serial number
 5. Arrangement/Class/Discharge
 6. Air flow, specified and actual
 7. Total static pressure (total external), specified and actual
 8. Show filter static pressure, specified and actual
 9. Inlet pressure
 10. Discharge pressure
 11. Sheave Make/Size/Bore
 12. Number of Belts/Make/Size
 13. Fan RPM
- I. Supply/Exhaust Fans:
 1. Location
 2. Manufacturer
 3. Model number
 4. Serial number
 5. Air flow, specified and actual
 6. Total static pressure (total external), specified and actual
 7. Inlet pressure
 8. Discharge pressure
 9. Sheave Make/Size/Bore
 10. Number of Belts/Make/Size
 11. Fan RPM
- J. Duct Traverses:
 1. System zone/branch
 2. Duct size
 3. Area
 4. Design velocity
 5. Design air flow
 6. Test velocity
 7. Test air flow
 8. Duct static pressure
 9. Air temperature
 10. Air correction factor
- K. Duct Leak Tests:
 1. Description of ductwork under test

2. Duct design operating pressure
3. Duct design test static pressure
4. Duct capacity, air flow
5. Maximum allowable leakage duct capacity times leak factor
6. Test apparatus
 - a. Blower
 - b. Orifice, tube size
 - c. Orifice size
 - d. Calibrated
7. Test static pressure
8. Test orifice differential pressure
9. Leakage
- L. Air Distribution Tests:
 1. Air terminal number
 2. Room number/location
 3. Terminal type
 4. Terminal size
 5. Area factor
 6. Design velocity
 7. Design air flow
 8. Test (final) velocity
 9. Test (final) air flow
 10. Percent of design air flow

END OF SECTION