

Scope of Work

Air Cooled Chiller Retrofit at Douglas City Hall

GENERAL

Replace ground mounted water-cooled chiller and cooling tower with a new, air-cooled chiller. The existing chiller and cooling tower are beyond the end of their useful life and should be replaced before failure.

1. GENERAL

- A. Site altitude: Equipment shall be sized and rated for specified performance at site altitude of 4,100' ASL.
- B. Supplemental Documentation: The following documents support this Scope of Work, and shall be considered part of McKinstry's requirements. Where discrepancies exist among referenced documents, the more stringent shall apply.
 - 1) City's Construction Design Guidelines and Specifications
 - 2) Codes
 - (i) 2006 International Building Code.
 - (ii) 2006 International Existing Building Code.
 - (iii) 2006 International Fire Code.
 - (iv) 2006 International Plumbing Code.
 - (v) 2006 International Mechanical Code.
 - (vi) 2006 International Fuel Gas Code.
 - (vii) 2006 International Energy Conservation Code.
 - a) **A sealed code variance has been submitted by McKinstry and approved by the City for the omission of variable frequency drives (VFD) on the existing chilled water pumps, and as such, McKinstry has not included new pump motors or VFDs in this Scope of Work.**
 - (viii) 2005 National Electric Code.
 - 3) Industry Standards (Latest edition, unless noted otherwise)
 - (i) NEBB Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems
 - (ii) SMACNA HVAC Duct Construction Standards, Metal and Flexible
 - (iii) National Fire Protection Association Standards (NFPA)
 - 4) Reference Drawings
 - (i) Existing facility drawings.

2. MECHANICAL

- A. McKinstry shall be responsible for equipment, materials, accessories, insulation, and other associated requirements called for in the following scope, and as indicated in the above supported documents.
- B. Demolition
 - 1) Abandon existing chiller in-place
 - (i) Cooling water system shall be drained, as necessary, to allow for installation of the new air-cooled chiller.
 - (ii) Existing chiller will be abandoned in-place.
 - (iii) Existing chiller supply and return piping will be cut and capped.
 - 2) Demolish and properly dispose of the existing cooling tower including all accessories and piping from disconnect location mutually agreed upon by McKinstry and the City.
 - 3) All other chilled water plant components (pumps, expansion tank, air separator, etc.) are to remain in place and operational. It is assumed that all existing equipment intended to be reused is in good, working condition. If existing, reused equipment is not functional, McKinstry can provide an additional cost to replace that equipment.
- C. McKinstry shall furnish, receive, offload, and provide crane and rigging for the new air-cooled chiller.
 - 1) Install one (1) new air-cooled chiller. (BOD: York YLAA0080SE17XFBSDTX)
 - (i) Condenser fan motors shall include integral VFDs for speed control or electrically commutated.
 - 2) Extend chilled water piping to newly installed air-cooled chiller. Replace piping appurtenances in demolished piping associated with the existing chiller and cooling tower, as necessary for operation of air-cooled chiller.
 - 3) Furnish and install piping insulation, jacketing, and labeling to match existing indoor/outdoor piping.
 - 4) Install piping wells and taps necessary for controls.
 - 5) Install a temporary chiller connection on the new supply/return piping located outdoors to be used when the new air-cooled chiller is down for service or repair.
 - 6) Clean and flush all newly installed piping before startup.
 - 7) Testing and balancing associated with the installation of the new air-cooled chiller.
 - 8) Glycol for freeze protection is excluded from this scope of work. It is expected that the City of Douglas will continue to drain down the cooling water system during the winter season, as is the current procedure for the existing, outdoor cooling tower.
 - (i) If glycol freeze protection is preferred, McKinstry can provide a price for this additional scope. McKinstry can also provide any assistance necessary for startup including nitrogen or any other gasses needed.

3. STRUCTURAL

- A. McKinstry shall be responsible for all equipment, materials, accessories, and other associated requirements called for in the following scope.

Scope of Work

- B. Concrete Cutting and Concrete Pad
 - 1) Cut out a 8'X10" section of concrete and form and pour a new isolation pad for the new air-cooled chiller.
- C. Equipment Mounting on Concrete Pad
 - 1) New air-cooled chiller shall be mounted securely to the new concrete pad per manufacturer requirements.
- D. Security Fencing and Access Gate
 - 1) Install approximately 75 ft of fencing with a 12 ft vehicle access gate for security.
- 4. **CONTROLS**
 - A. McKinstry shall be responsible for all equipment, materials, accessories, programming, and other associated requirements called for in the following scope.
 - B. There is no existing, centralized building automation system (BAS) at City Hall. The City utilizes a Delta controller for one of the existing AHUs but all other equipment in the facility, including the existing chiller and cooling tower, are currently controlled locally.
 - C. The new air-cooled chiller shall be controlled from the on-board chiller controller. No standalone equipment controllers will be provided.
- 5. **ELECTRICAL**
 - A. McKinstry shall be responsible for equipment, materials, accessories, and other associated requirements called for in the following scope.
 - B. General circuiting requirements
 - 1) For power circuits being removed, McKinstry shall remove conductors back to the associated panel, and shall remove associated starters, disconnects, and other devices as applicable. Conduit shall be cut back to within 3" of room penetration.
 - 2) For new power circuits, McKinstry shall furnish and install overcurrent protection, conduit, conductors, disconnect, and related accessories.
 - 3) Where power circuits, intended to be removed, meet the requirements for new power circuits, existing components may be reused where in compliance with current NEC.
 - 4) Unless otherwise specified, similar loads may be combined on a common circuit as permitted by current NEC.
 - C. Electrical panels and disconnects serving mechanical equipment shall comply with the service clearance requirements of the NEC. McKinstry shall furnish and install remote mounted panels and disconnects where required by the NEC.
 - D. General Scope: Electrical work to support the replacement of (1) chiller, (1) cooling tower, and associated components with (1) air-cooled chiller.
 - E. Demolition:
 - 1) Demolish existing cooling tower and associated appurtenances.
 - (i) Disconnect and safe off power to cooling tower for demolition.
 - (ii) Remove existing disconnect.
 - (iii) Remove conductors from existing conduit between disconnect and cooling tower.
 - (iv) Remove conduit and all conductors between existing junction box and disconnect being removed. Cap and seal knockout in junction box.
 - 2) Abandon in-place, existing chiller and associated appurtenances.
 - (i) Disconnect and safe off power to chiller.
 - (ii) Remove existing disconnect.
 - (iii) Remove conductors from existing conduit between disconnect and chiller.
 - (iv) Remove conduit and all conductors between existing junction box and disconnect being removed. Cap and seal knockout in junction box.
 - F. New Work:
 - 1) New ground mounted air-cooled chiller 'CH-1' (3-point connection, 208V/3Ph, 373 MCA, 400 MOCP, 5 KA SCCR):
 - (i) Provide and install new disconnect switch for air-cooled chiller module.
 - (ii) Provide and install new fused switch in existing main distribution board. Switch AIC rating shall meet the AIC rating of the equipment board.
- 6. **DESIGN**
 - A. McKinstry shall provide all necessary design, engineering, building cooling load calculations, and permit drawings for the installation of the new air-cooled chiller.
- 7. **COMMISSIONING**
 - A. McKinstry shall provide commissioning for the new air-cooled chiller and associated components per manufacture requirements.
- 8. **TRAINING**
 - A. McKinstry shall provide training, as required, for the new air-cooled chiller and associated components.

Scope of Work

EXCLUSIONS, AND CLARIFICATIONS

9. EQUIPMENT SELECTIONS

- A. The Price is based on the Scope of Work herein, exclusions, and clarifications. Some scopes of work reference particular equipment selections. The selections are a basis of design and may change during the design period as needed to accomplish the stated objectives. Final equipment selections may vary from the Scope of Work herein. Modifications to selections (the basis of design) may result in cost changes.

10. EXCLUSIONS AND CLARIFICATIONS

- A. The following exclusions and clarifications apply to the Scope of Work herein.

B. General

- (i) Correction of deficiencies not explicitly listed in this Scope of Work are not included; if existing equipment or components are reused, repairs to existing equipment or components are not included unless specifically noted.
- (ii) Prices are valid until **September 22nd, 2023**. If the contract for this work is not signed on or prior to this date, McKinstry reserves the right to update pricing based on changes in labor rates, equipment, and material.
- (iii) Demolition work not specified in this Scope of Work is excluded.
- (iv) Davis-Bacon and/or prevailing wage rates are not included in this Scope of Work and pricing.
- (v) All taxes are included per Maintenance, Repair, Replacement and Alteration (MRRA) designation.
- (vi) Any liability for consequential damages is excluded with this price.
- (vii) Any liquidated damages are excluded.
- (viii) This is an outcome-based scope based on preliminary design. McKinstry has included all parts, components, and repairs known to be necessary to meet the stated outcomes. In the event that unforeseen, unknown, or conditions different from the initial audit arise, contingency has been included in the project for this purpose. McKinstry will notify the City of the need to use contingency to address these conditions and at its discretion use contingency as needed. Contingency use is not a change order to the contract and is subject to the proposed fee structure, including overhead and profit.
- (ix) Should the City request change orders, they are subject to the fee structure, including overhead and profit.
- (x) Project cost includes work during normal business hours, where possible. Work outside of normal business hours will be limited to interconnection in specific cases.
- (xi) Delays. If McKinstry is delayed in the commencement or completion of the Work or Services by causes beyond its control, including but not limited to; pandemic, fire, flood, theft, vandalism, labor disputes, abnormal adverse weather conditions, acts of God, acts of the public enemy, riot, war, unavailability of equipment or supplies, or supply chain delays caused by any of the foregoing, then McKinstry to provide written notice to the City of the existence, extent of, and reason for such delays, and an equitable adjustment in the Time of the Contract shall be made as a result. If a delay is attributable to failure by City to perform its obligations under the Contract or failure to cooperate with McKinstry in the timely completion of the Work, then delays, and an equitable adjustment to Time and Price shall be made as a result.
- (xii) COVID-19. Notwithstanding any other provision(s) of this or any related Contract(s), if McKinstry's work is delayed, disrupted, suspended, or otherwise impacted as a direct or indirect result of COVID-19 (coronavirus), including, but not limited to, by (1) disruptions to material and/or equipment supply; (2) illness of McKinstry's workforce and/or unavailability of labor; (3) government quarantines, closures, or other mandates, restrictions, and/or directives; (4) City or McKinstry restrictions and/or directives; and/or (5) fulfillment of McKinstry's contractual or legal health and safety obligations associated with COVID-19; then, McKinstry to be entitled to a reasonable equitable adjustment to its scope, schedule, duration, and price to account for such delays, disruptions, suspensions, and impacts.

C. Existing Conditions

- (i) It is assumed that the existing utility services are operational and adequately sized to accommodate new equipment, unless noted otherwise in this Scope of Work.
- (ii) It is assumed that the existing structures are adequate to accommodate new and existing equipment, unless noted otherwise in this Scope of Work.
- (iii) Correction of any existing code violations not identified in this Scope of Work is excluded.
- (iv) It is assumed that existing systems are adequate to meet the building load and in serviceable condition. Repair or replacement of these items not addressed in this Scope of Work is excluded. Examples of these systems include, but are not limited to: heat exchangers, piping, coils, pumps, valves, air handling units, rooftop units, unit ventilators, terminal VAV boxes, unit heaters, exhaust fans, ductwork, diffusers, dampers, and other associated appurtenances.
- (v) Furnishing or installing any access panels or doors not specifically identified is excluded.
- (vi) Cooling water systems will be drained and refilled, as needed, using existing isolation and air bleeding.
- (vii) McKinstry will not be responsible for any re-inspection fees or other costs that are a direct result of failed inspections due to other work being performed in or around McKinstry's work that are not explicitly stated in this Scope of Work.

Scope of Work

- (viii) McKinstry is not responsible for delays in start-up, or additional start-ups, that are outside of this Scope of Work.
 - (ix) New ceiling tiles, removal and replacement of ceiling tile grid, and any repairs to existing ceiling tile and grid conditions are excluded unless otherwise specifically called out in this Scope of Work.
 - (x) Repair, replacement, or refurbishment of any existing equipment upstream or downstream of the specified equipment in this Scope of Work shall be excluded unless specifically identified.
- D. Design
- (i) The construction documents will not include sections or specifications as neither deliverable is necessary for this Scope of Work to be performed.
 - (ii) Costs are based on City and McKinstry design standards and any deviation from these standards, at the request of the City, which requires additional costs, will be addressed via the change order process.
 - (iii) Painting of new equipment is excluded.
 - (iv) Repair of existing duct leakage and blowouts is excluded.
 - (v) Modifying and/or adding seismic restraint components to existing mechanical equipment is excluded.
 - (vi) There is no guarantee that post-installation sound levels will not be higher than current levels.
 - (vii) BIM and VDC modeling is excluded.
- E. Construction Schedule
- (i) The construction schedule has been built around a one (1) week turn-around time between the City receiving and responding to each submittal. McKinstry reserves the right to extend construction timelines as required to account for any delays in submittal reviews by the City.
 - (ii) The project schedule may be extended by inclement weather.
 - (iii) The construction schedule has been built with the understanding that McKinstry will have full, unrestricted access twenty-four hours a day seven days a week to buildings during the construction period given the appropriate coordination, training, and credentials.
 - (iv) Temporary heating and/or cooling is excluded from this Scope of Work. The building may not meet the City's comfort standards during all or part of the construction period (estimated 3-4 weeks of onsite work).
 - (v) Reasonable care will be taken to minimize damage to tree roots from crane pick activities. If any crane pick damages tree roots nearby the site, McKinstry will not be responsible for tree replanting or any other remediation to trees.
 - (vi) Costs are based on prompt and safe access to all areas necessary to complete this Scope of Work.
 - (vii) Moving of facility equipment or furniture is excluded, unless noted otherwise in this Scope of Work.
 - (viii) City to provide special inspections as required by the AHJ for this Scope of Work.
- F. Scheduled Shut-downs
- (i) McKinstry acknowledges that the facility cannot be without power at any time and will make the appropriate arrangements for power for interconnections.
 - (ii) McKinstry shall provide one (1) week prior notice to the City if/when interconnections are going to occur.
- G. Hazardous Materials Exclusions
- (i) Abatement of any hazardous materials as well as the requisite costs and time needed for abatement are specifically excluded from this contract and McKinstry's Scope of Work.
 - (ii) Should unexpected hazardous materials be encountered during the construction of the project; the City is responsible for the testing and abatement of such materials as well as any delays and associated costs associated stoppage in work.
- H. Fire/Life Safety System Exclusions
- (i) Testing of the Fire/Life Safety system, modifications to the system/associated components and test and balance of smoke control systems are excluded from this Scope of Work.
 - (ii) Furnishing, installing, or wiring to any combination fire/smoke, fire dampers or smoke dampers is excluded from this Scope of Work.
 - (iii) Any changes to fire and life safety systems not noted in the Scope of Work are excluded from this Scope of Work.
 - (iv) Any changes to existing lightning protection system(s) are excluded from this Scope of Work.
- I. Commissioning Exclusions
- (i) Commissioning shall be provided by McKinstry's Subcontractor partner per manufacturer requirements. Third party commissioning is excluded from this Scope of Work.
 - (ii) Beyond the components and systems not specifically included in this Scope of Work, all other components and systems are excluded, including but not limited to the following items:
 - a. Fire/Life Safety System, as noted above.
 - b. Elevators.
 - c. Back-up Generators.
 - d. Electrical services/devices not associated with the Scope of Work.
 - e. HVAC equipment not specifically called out in the Scope of Work.

Scope of Work

PRICE OF THE WORK

McKinstry's lump sum Price for the Scope of Work provided herein.

➤ Douglas City Hall Air-Cooled Chiller Retrofit	\$601,946.24
--	---------------------

