

THE CITY OF ARNOLD, MISSOURI
REQUEST FOR BID
FOR
ARNOLD RECREATION CENTER
HVAC REPLACEMENT

MARCH 2017

INFORMATION FOR SUBMITTERS

I. Bid Request

Notice is hereby given that sealed bids for the HVAC replacement will be received by the City Clerk at Arnold City Hall, 2101 Jeffco Blvd, Arnold, MO 63010 until 10:00 a.m., Tuesday, March 28, 2017, at which time the bids will be publicly opened and read. Bids (original and 2 copies) must be submitted in a sealed envelope marked “**HVAC REPLACEMENT**” in the lower left corner. No faxed or e-mailed bids will be accepted.

Specifications and bid documents are available for pickup on or after Friday, March 3, 2017 at City Hall or on the City’s website at www.arnoldmo.org.

A mandatory pre-bid meeting is scheduled for Tuesday, March 14, 2017 at 10:00 a.m. at Arnold Recreation Center, 1695 Missouri State Road, Arnold, Missouri, 63010 in lobby (ask front desk for location). The purpose of the meeting is to review the project, respond to questions and address concerns for bidding contractors.

The City of Arnold reserves the right to reject any and all bids and to negotiate any particulars in the bids received. The City reserves the right to waive any variances from original bid specifications in cases where the variances are considered to be in the best interest of the City. The City reserves the right to waive any informalities in the bids received, and to accept the bid that in its judgment will be in the best interest of the City of Arnold, regardless of the price placement of that bid.

II. Contact Person

Questions relating to this document may be addressed to:

Dave Crutchley
Park Superintendent
1695 Missouri State Road
Arnold, MO 63010
(636) 282-6646

Questions will be accepted until close of business Tuesday, March 21, 2017. Submitters should have no contact with other department personnel except as specifically authorized by person listed.

III. Withdrawal of Bids

Any person or firm may withdraw their bid by written request at any time prior to the scheduled time for the opening of the bids.

IV. Economy of Preparation

Bids should be prepared simply and economically, providing a straightforward, concise description of the bidder's capabilities to satisfy the requirements of this request. The bidder shall be responsible for costs incurred in the bid preparation and delivery.

Neither the distribution of this RFB nor acceptance of any response should be constructed as creating a contractual obligation between Arnold and any firm. Arnold does not authorize and will not be responsible for any expense or charge associated with providing a response to this Request for Bid.

Your bid must remain valid for at least 90 days after the submittal date.

V. Schedule

After reviewing the bids received, staff will forward their recommendation for approval by the City Council at an April 2017 meeting. This project will be pursued such that delivery will be complete within 60 days of award.

VI. Divisibility

Unless the bidder specifies otherwise, the City shall assume that a bid is divisible.

VII. Requirements

The City has established certain requirements as specified in the Request. None of the requirements are designed to give any bidder an advantage or disadvantage in the bid process. Bidders are encouraged to submit bids even if the bid does not meet the requirements as stated. However, the bid must state specifically which requirements are not met, how the same function may be otherwise performed, and why this deviation should not be considered material.

VIII. Compliance

It is the responsibility of the successful bidder to ensure compliance with all federal, state and local requirements, including, but not limited to, the following Revised Statutes of the State of Missouri:

- 290.210 et seq. RSMo. Prevailing Wage
- 292.675 RSMo. OSHA Training
- 290.550 et seq. RSMo. Excessive Unemployment
- 34.353 et seq. RSMo. American Products

The above list of statutes is not intended to be exhaustive. The compliance requirement of this provision is continuing and must be satisfied during the entirety of the bid process and any future Agreement. It is the sole responsibility of the successful bidder to ensure that

this provision is satisfied; and the City assumes no responsibility or liability for the failure to comply.

XIII. Scope of Work

Qualified providers shall submit a Bid to provide HVAC replacement for the Arnold Recreation Center for the areas mentioned in this bid.

- Replace 4 new Trane rooftop unit
- Refrigerant recovery
- Disposal of old equipment
- Hoisting
- Condensate piping
- Disconnect and reconnect control and power wiring
- Disconnect and reconnect gas piping (reuse gas regulator)
- Disconnect and reconnect hot water piping
- Permit
- Disconnect Switch (reuse exiting)
- 115 Volt GFI service outlet
- Start-up
- Labor Warranty 1 year
- Commissioning of building
- All refrigerant will be recovered from all units and become property of the City of Arnold

Specifications

HVAC Criteria

Replace three existing Trane rooftop units and one existing Trane 100% packaged outdoor air unit.

Existing equipment:

RTU-1:

Model# TCD480A40P0C7NA4AB0D0F0HJ00M000

Serial number# C04K09229

RTU-2:

Model# TCD330A40P0C6DA4AB0D0F0HJ00M000

Serial number# C04K09159

RTU-3:

Model# TCD600A40P0C8NA4AB0D0F0HJ00M000

Serial number# C04K09161

MAU-1:

Model# SLHFC7544600E69D7001ABWE0G00L00RT0Y8600
Serial number# C04K09185

New equipment:

RTU-1: Trane 50-ton Voyager 3 Rooftop unit. Minimum efficiency 10.4 EER, 14.5 IEER.

RTU-2: Trane 35-ton Voyager 3 Rooftop unit. Minimum efficiency 10.5 EER, 13.6 IEER.

RTU-3: Trane 50-ton Voyager 3 Rooftop unit. Minimum efficiency 10.4 EER, 14.5 IEER.

Rooftop units shall be equipped with the following:

- Downflow configuration
- Efficiency as stated above to match existing electrical components
- 460 volt 3 phase 60 hertz
- 4" MERV 8 filters
- Supply Fan VFD
- VAV - Discharge air temperature control
- New unit mounted non-fused disconnect switch
- New unit mounted 15A GFI Convenience Outlet
- Hinged service access
- Condenser coil hail guards
- Stainless steel drain pan
- Wireless BACNet interface for communication with existing Trane Tracer System
- Warranty: 5 year compressor parts only, 1st year whole unit including labor

MAU-1: Trane 75-ton Intellipak Rooftop unit.

Make-up Air unit shall be equipped with the following:

- Capacity control for 100% outside air application
- Hot water heating coil
- Downflow configuration
- Efficiency as stated above to match existing electrical components
- 460 volt 3 phase 60 hertz
- 2" MERV 8 prefilter with 14" MERV 14 Cartridge filter
- Supply Fan VFD
- Discharge air temperature control
- New unit mounted non-fused disconnect switch
- New unit mounted 15A GFI Convenience Outlet
- Hinged service access
- Condenser coil hail guards
- Warranty: 5 year compressor parts only, 1st year whole unit including labor

Work not included

- Code upgrade
- Engineering
- Electrical upgrade
- Roofing
- Structural steel modifications
- Drawings
- Duct detectors and fire alarm upgrade. (We will reconnect the emergency shutdown signal to the RTU)

Automation Criteria

Existing Trane Tracer Summit System shall be updated with most current version/software and to include the following:

- Web-based system to allow operators to setup, operate and modify system parameters through an internet connection (local or remote) to receive and respond to alarms.
- Mobile app to allow user access to site using a smart phone or tablet.
- Utilize BACnet, an open standard protocol.
- Control of three new rooftop units, one new make-up air unit and integration of all existing controllers in building including: VAVs, AHUS, Exhaust Fans, Hot Water boilers, Pumps, Pool Room Dehumidification Units, Heat Recovery Unit, Fans.
- Updated graphics
- Startup and owner training of building personnel.
- Provide owner with the highest level of administrative access to Trane Trace Summit System.

Alternative Proposal Criteria will be accepted with prior approval from the City of Arnold.

All work must adhere to the original design of the building see “ATTACHMENT A: SEQUENCE OF OPERATION”. Verification documentation required.

ATTACHMENT A:

SEQUENCES OF OPERATION

Section 15950

The following systems are included in this sequence of operation:

- A.) Miscellaneous Air System Control Requirements
- B.) Local Status Points
- C.) Heating Hot Water System (Boilers)
- D.) Domestic Hot Water System
- E.) Pool Heating Water System
- F.) Gymnasium Air Systems (RTU-1)
- G.) Fitness Area—First Floor Air System (RTU-2)
- H.) Offices and Meeting Rooms—Second Floor Air System (RTU-3)
- I.) Locker Room Transfer Air System (AHU-1)
- J.) Outdoor Pool Building System (AHU-2)
- K.) Make-Up Air Handling System (MAU-1)
- L.) Natatorium Dehumidification System (PAU-1 and PAU-2)
- M.) Heat Recovery Unit (HRU-1)
- N.) Cabinet Unit Heaters
- O.) Exhaust and Transfer Fans

A. Miscellaneous Air System Control Requirements:

1. Graphics: All graphics shall display time of day, date, outdoor air temperature and outdoor air relative humidity.
2. Smoke Detectors: One smoke duct detector shall be furnished and installed in the return air ductwork of RTU's 1, 2 and 3 as well as AHU-1, and in the supply ductwork for RTU's 1 and 3 under Division 16000. This detector shall shut down and lock out the supply fan regardless of the position of the selector switch. Manual reset will be required to resume normal operation. The function shall be provided by external starter wiring and equipment all provided under Division 16000.
3. System Pump Starters: Each pump starter is equipped with a control power transformer, control fuse, overload protection, auxiliary contacts, and Hand-Off-Auto switch under Division 16. An overload trip shall shutdown and lockout the pump regardless of the selector switch position. Manual reset shall be required to resume normal operation. This function shall be provided by internal starter wiring under Division 16 as shown on the electrical drawings. The status of each pump shall be monitored by the DDC system via a current sensing relay to be provided for each pump listed in this sequence.

4. Fan System Starters. Each fan starter is equipped with a control power transformer, control fuse, overload protection, auxiliary contacts, and Hand-Off-Auto switch under Division 16. An overload trip shall shutdown and lockout the fan regardless of the selector switch position. Manual reset shall be required to resume normal operation. This function shall be provided by internal starter wiring under Division 16 as shown on the electrical drawings.
The status of each fan shall be monitored by the DDC system via a current sensing relay to be provided for each pump listed in this sequence.
5. Variable Frequency Drive: Each pump or fan variable frequency drive is equipped with a control power transformer, control fuse, overload protection, auxiliary contacts, and Hand-Off-Auto switch under Division 16. An overload trip shall shutdown and lockout the equipment regardless of the selector switch position. Manual reset shall be required to resume normal operation. This function shall be provided by internal starter wiring under division 16 as shown on the electrical drawings. A proof of operation status of each pump or fan shall be monitored by the DDC system via a current sensing relay which shall be provided for each piece of equipment controlled by a drive in this sequence.

The following functions shall be provided by the DDC system. These functions shall be completely furnished and wired from the VFD under division 15950 of the specifications:

- 1.) The DDC shall provide input signal to the VFD
- 2.) The DDC shall provide start/stop signal to the VFD
- 3.) The VFD shall be connected to the DDC system through a data connection.

The following function shall be provided to the DDC through the data connection. This function shall be completely furnished under Division 15. The temperature control contractor shall coordinate with the VFD supplier to implement these functions:

- 1.) The DDC shall monitor VFD feedback signal indicating drive speed.
- 2.) The DDC shall monitor VFD fault status.
- 3.) The DDC shall monitor VFD bypass position.

6. Additional Wiring: Any wiring not shown on the electrical drawings that is required to implement the functions in these sequences shall be provided under section 15950 of the specification. In addition, items

not normally supplied under Division 16 shall be included under this section.

- B. Local Status Points: Common DDC signals for outdoor air temperature and outdoor air relative humidity provide an input the DDC system. These sensors shall be wired to the main control panel in the boiler room and be permitted to be utilized across the network as a common point to be used by any control loops. This pint shall be configured as a virtual point and upon sensor failure or loss of communication the virtual point shall remain at the last value. Where this cannot be achieved, a 4-20 mA current loop shall be created with 0-10 V inputs into all stand alone controllers which require outdoor air temperature.

C. Heating Hot Water System (Boilers):

1. Overview: This system consists of two, gas fired hot water boilers piped in parallel and two heating water pumps operating in parallel to feed heating water throughout the building, including the independent, secondary heated systems outlined below.
2. Safeties: Heating hot water supply temperature shall be monitored by the DDC system provide a high temperature alarm condition upon an increase of heating hot water temperature above 200°F (adjustable) and a low temperature alarm condition upon a decrease of heating hot water below 110°F (adjustable).
3. Start-up Sequence: The boilers shall be operated by the factory supplied controls and the remaining system components enabled/disabled by the Owner through the DDC system manually (through a common “virtual point” available on the graphic screen called “Boiler Status”. Information regarding boiler operation shall then be accessible through the DDC.

The boiler set points shall be set so that the discharge set point of the primary boiler (B-1) is 160°F and the discharge set point of the secondary boiler (B-2) is 160°F. This shall permit operation of boiler one under normal circumstances and under heavy load conditions, when the primary boiler is not adequate, the secondary boiler shall “automatically” supplement this load.

4. Heating Water Pumps: The heating water pumps shall be controlled by the DDC system when the variable frequency drive Hand-Off-Auto switch is located in the Auto position.

Heating Water Pump Sequence: The heating water loop pumps shall be enabled and operated continuously. Upon sequence initiation, both pump's variable frequency drives shall be enabled and ramped up in parallel to their minimum speed of 15 Hz (adjustable). The speed of these pumps shall then be modulated by a PID type control loop based upon an input from a differential pressure sensor located in the heating water loop remote from the pump discharge. This loop shall maintain a differential pressure setpoint of 10 psig. (adjustable). If the DDC system loses the signal from the differential pressure sensor, or the VFD loses control signal from the DDC system, the pumps shall operate at the speed when the signal was lost.

D. Domestic Hot Water System:

1. Overview: This system consists of the domestic hot water generation equipment for the facility. This equipment includes a water-to-water heat exchanger, a domestic hot water storage tank, a domestic hot water circulation pump, and a heating water control valve.
2. Safeties: The domestic hot water supply temperature shall be monitored by the DDC system to provide a high temperature alarm condition upon an increase of domestic hot water temperature above 150°F (adjustable).

A self-contained temperature relief valve shall also be provided with this system as shown on the drawings. This valve shall be set at 150°F and shall relieve water to a drain whenever the domestic water temperature exceeds this setpoint.

3. Domestic Water Circulation Pump Control: Under normal operation the DDC system shall command the Domestic Water Circulation pump shall operate continuously. Upon loss of proof of operation, the DDC shall place this system in alarm and notify the workstation operator.
4. Heating Water Control: A temperature sensor located in the domestic heating water supply line shall be used to provide input into a PID control loop. The output of this loop shall be used to modulate a heating water control valve to maintain a domestic hot water supply temperature of 140°F (adjustable).

E. Pool Heating Water System:

1. Overview: This system serves to provide supplemental heating for the pool water under warm-up conditions when the pool dehumidification unit is unable to meet demand. This system consists of a water-to-

water heat exchanger, a circulation pump, and a heating hot water control valve.

2. Safeties: The pool heating water supply temperature shall be monitored by the DDC system. A high temperature alarm condition will be activated upon an increase of pool water temperature, as read in the pool water return line, above set point 100°F (adjustable), or an increase in pool heating water supply temperature above set point.

Alarm Temperature Set Points Pool Temp. Supply Temp.

Indoor Pool	88°F	100°F
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3. Pool Heating Water Circulation Pump Control: Under normal operation the DDC system shall command the Pool Heating Water Circulation pump shall operate continuously. Upon loss of proof of operation, the DDC shall place this system in alarm and notify the workstation operator.
4. Heating Water Control: A temperature sensor located in the pool heating water return line shall be used to provide input into a PID control loop. A second sensor located in the pool heating water supply line shall provide a maximum heating water supply temperature. The output of the PID loop shall be used to modulate a heating water control valve to maintain a pool water temperature of set point (adjustable). The heating water control valve shall not be allowed to open beyond a point such that the pool heating water supply temperature exceeds set point (adjustable).

Water Temperature Set Points Pool Temp. Supply Temp.

Indoor Pool	84°F	96°F
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F. Gymnasium Air Handling System (RTU-1):

1. Overview: The system consists of an air handling unit with variable frequency drive which is used to create a single zone, variable volume air system. The system consists of a mixing plenum box, filters, DX cooling coil, supply air fan, humidifier and re-heat coil.
2. Safeties: Smoke detectors shall be provided and interlocked as described in the Miscellaneous System Control Requirements of this specification. Upon a smoke detector condition, the DDC system shall command the RTU- off and make-up air unit (MAU-1) off. The heating valve shall be placed opened to the full coil flow position.

3. Discharge Temperature Control: A discharge air temperature control loop shall maintain a leaving air temperature setpoint of 55°F (adjustable) unless overridden by another portion of this sequence. A software based PID control loop shall modulate the compressor/condensing to maintain leaving air temperature setpoint. A rise in leaving air temperature will cause the condensing/compressor unit to modulate from off to on. A drop in leaving air temperature reverses the sequence.
4. Space Temperature Control: Once enabled, the supply air fan shall be started by the DDC system, and ramped up to its minimum speed of 45 Hz (adjustable). (Manual override of the computer signal shall be provided by the DDC panel.) Control of the fan speed shall then be controlled as part of the space temperature control sequence. A space temperature sensor shall provide input to a software based PID control loop, the output shall modulate the VFD fan speed and reheat coil valve in sequence to maintain space temperature. A temperature sensor located in the Gymnasium shall provide an input to a software based PID type control loop. The output of this loop shall be used to establish a virtual (calculated) point to be used as the discharge air temperature set-point that shall be modulated between a minimum temperature of 55°F (adjustable) and a maximum temperature of 90°F (adjustable). The discharge air temperature set-point shall then be used as an input into a second PID type control loop to modulate the re-heat coil control valve to maintain the calculated discharge air temperature as required to maintain space temperature. A rise in space temperature with the discharge air temperature set-point at its minimum shall modulate the fan speed from minimum (45 Hz, adjustable) to maximum (60 Hz, adjustable). A drop in space temperature reverses the sequence.
5. Space Humidity Control: A space humidity sensor provides input to a software based PID control loop. The output of this control loop shall override the above sequences to maintain space humidity and space temperature when the space humidity rises above 60% RH. When this override is in effect, a virtual point shall indicate that the humidity loop is 'on - dehumidification'. The remote condensing unit shall modulate from closed to open to maintain humidity setpoint (non-adjustable). The reheat control shall modulate from closed to open to maintain space temperature. On a further rise in space humidity the fan speed shall increase from a minimum to a maximum (adjustable). A drop in space humidity shall reverse this sequence. Upon a drop in space humidity below 30%, a virtual point shall indicate that the humidity loop is 'on – humidity add'. The humidifier (H-1) shall energize and modulate steam output to the unit mounted distribution system. The fan speed shall be controlled by the space temperature control loop.

Upon a rise in space RH to 40% (adjustable), the humidifier shall be de-energized. Provide a high limit humidity sensor in the supply air discharge located in RTU. This shall de-energize the humidifier if the duct RH exceeds 90% (adjustable).

6. Supply Fan Start/Stop Control: A duct detector will be furnished and installed under Division 16 to shut down the supply fan.

A fire alarm relay provided under Division 16 will shut down and lock out the supply fan regardless of the position of the selector switch. Manual reset will be required to resume normal operation. This function will be provided by external starter wiring and equipment all provided under Division 16.

Any wiring not shown on the electrical drawings that is required to implement these functions shall also be provided under this section of the specification. Items not normally installed by Division 16 shall also be installed under Section 15950 of the specification.

If all of the safeties described in the preceding paragraphs are satisfied, then the fan shall run continuously when the selector switch is placed in the Auto position, and the computer has commanded the fan on.

The following functions shall be provided by the DDC system. These functions shall be completely furnished and wired from the starter switch on under Section 15950 of the specification.

An optimized start/stop sequence from the DDC system shall operate the supply fan on a programmed schedule.

The DDC shall monitor the VFD through a direct interface.

7. Un-occupied Operation: A general building operating schedule shall be established for the operation of this system. During unoccupied conditions, the minimum outdoor air dampers shall be closed, and the space set points reset to a minimum temperature of 65 F (adjustable) and a maximum temperature of 80 F (adjustable). The supply fan shall continue to be operated at its minimum speed, and the control valves and economizer modulated as outlined above in order to meet the space set points.

G. Fitness Area—First Floor Air System (RTU-2):

1. Overview: The system consists of an air handling unit including a mixing plenum box, make-up air damper, filters, direct expansion cooling coil and supply air fan with variable frequency drive. The unit

serves pressure independent type variable air volume units with re-heat coils.

2. Safeties: Smoke detector shall be provided and interlocked as described in the Miscellaneous System Control Requirements of this specification. Upon a smoke detector condition, the DDC system shall command the make-up air unit (MAU-1) off. The heating valve shall be placed opened to the full coil flow position.
3. Supply Fan Control: An input sensing the static pressure at the location shown on the drawings provides an input to the DDC panel. The output is used to modulate the fan speed as required to maintain 1 inch w.c. static pressure relative to the return plenum (adjustable). As the static pressure rises, the fan speed decreases. As the static pressure drops, the fan speed increases.
4. Discharge Temperature Control: A discharge air temperature control loop shall maintain a leaving air temperature set point of 54°F (adjustable) unless overridden by another portion of this sequence. A software based PID control loop shall modulate the compressor/condensing to maintain leaving air temperature set point. A rise in leaving air temperature will cause the condensing/compressor unit to modulate from off to on. A drop in leaving air temperature reverses the sequence.
5. Space Humidity Control: A space humidity sensor provides input to a software based PID control loop. The output of this control loop shall override the above sequences to maintain space humidity and space temperature when the space humidity rises above 60% RH. When this override is in effect, a virtual point shall indicate that the humidity loop is 'on - dehumidification'. The remote condensing unit shall modulate from closed to open to maintain humidity set point (non-adjustable). The reheat valves at the zones shall modulate from closed to open to maintain space temperature. A drop in space humidity shall reverse this sequence.
6. Occupied and Un-occupied Modes: The unit shall be able to be scheduled and indexed for both Occupied and Un-occupied modes. In occupied mode, the unit shall ramp up to set points. If this start-up does not occur correctly and alarm shall be issued. Un-occupied mode shall allow the space temperatures to vary between 65° & 80° F set points (adjustable, in lieu of the occupied set points).
7. Supply Fan Start/Stop Control: A duct detector will be furnished and installed under Division 16 to shut down the supply fan.

A fire alarm relay provided under Division 16 will shut down and lock out the supply fan regardless of the position of the selector switch. Manual reset will be required to resume normal operation. This function will be provided by external starter wiring and equipment all provided under Division 16.

Any wiring not shown on the electrical drawings that is required to implement these functions shall also be provided under this section of the specification. Items not normally installed by Division 16 shall also be installed under Section 15950 of the specification.

If all of the safeties described in the preceding paragraphs are satisfied, then the fan shall run continuously when the selector switch is placed in the Auto position, and the computer has commanded the fan on.

The following functions shall be provided by the DDC system. These functions shall be completely furnished and wired from the starter switch on under Section 15950 of the specification.

An optimized start/stop sequence from the DDC system shall operate the supply fan on a programmed schedule.

The DDC shall provide input signal to the VFD based on duct pressure.

The DDC shall monitor the VFD through a direct interface.

H. Office and Meeting Rooms—Second Floor Air System (RTU-3):

1. Overview: The system consists of an air handling unit including a mixing plenum box, make-up air damper, filters, direct expansion cooling coil and supply air fan with variable frequency drive. The unit serves pressure independent type variable air volume units with re-heat coils.
2. Safeties: Smoke detectors shall be provided and interlocked as described in the Miscellaneous System Control Requirements of this specification. Upon a smoke detector condition, the DDC system shall command the make-up air unit (MAU-1) off. The heating valve shall be placed opened to the full coil flow position.
3. Supply Fan Control: An input sensing the static pressure at the location shown on the drawings provides an input to the DDC panel. The output is used to modulate the fan speed as required to maintain 1 inch w.c. static pressure relative to the return plenum (adjustable). As the

static pressure rises, the fan speed decreases. As the static pressure drops, the fan speed increases.

4. Discharge Temperature Control: A discharge air temperature control loop shall maintain a leaving air temperature set point of 55°F (adjustable) unless overridden by another portion of this sequence. A software based PID control loop shall modulate the compressor/condensing to maintain leaving air temperature set point. A rise in leaving air temperature will cause the condensing/compressor unit to modulate from off to on. A drop in leaving air temperature reverses the sequence.
5. Dual Duct Box Operation: The dual duct boxes in the meeting rooms shall modulate the RTU deck to maintain space temperature set point. Under normal operation the MAU deck will be closed. Carbon dioxide detectors mounted in the meeting rooms will, upon a CO2 level 200 above ambient, command the MAU deck full open. The MAU deck will stay full open for 2 hours and then modulate to the closed position.
6. Occupied and Un-occupied Modes: The unit shall be able to be scheduled and indexed for both Occupied and Un-occupied modes. In occupied mode, the unit shall ramp up to set points. If this start-up does not occur correctly and alarm shall be issued. Un-occupied mode shall allow the space temperatures to vary between 65° & 80° F set points (adjustable, in lieu of the occupied set points).
7. Supply Fan Start/Stop Control: A duct detector will be furnished and installed under Division 16 to shut down the supply fan.

A fire alarm relay provided under Division 16 will shut down and lock out the supply fan regardless of the position of the selector switch. Manual reset will be required to resume normal operation. This function will be provided by external starter wiring and equipment all provided under Division 16.

Any wiring not shown on the electrical drawings that is required to implement these functions shall also be provided under this section of the specification. Items not normally installed by Division 16 shall also be installed under Section 15950 of the specification.

If all of the safeties described in the preceding paragraphs are satisfied, then the fan shall run continuously when the selector switch is placed in the Auto position, and the computer has commanded the fan on.

The following functions shall be provided by the DDC system. These functions shall be completely furnished and wired from the starter switch on under Section 15950 of the specification.

An optimized start/stop sequence from the DDC system shall operate the supply fan on a programmed schedule.

The DDC shall provide input signal to the VFD based on duct pressure.

The DDC shall monitor the VFD through a direct interface.

I. Locker Room Transfer Air System (AHU-1):

1. Overview: This system consists of a single constant volume air handling system designed to transfer building air to be used to condition the locker room spaces. This system consists of filters, cooling coil, re-heat coil, supply air fan, and an exhaust fan.
2. Safeties: A smoke detector shall be provided and interlocked as described in the Miscellaneous System Control Requirements of this specification.
3. Start-up/Schedule: The air handling system shall operate base upon the general building operating schedule. If all safeties are satisfied, then the DDC shall enable the air handling unit system. Once enabled the supply air fan and exhaust air fan shall be started.
4. Space Temperature Control: A discharge air temperature control loop shall maintain a leaving air temperature set point of 55°F (adjustable) unless overridden by another portion of this sequence. A software based PID control loop shall modulate the remote condensing unit and the reheat valve in sequence to maintain leaving air temperature set point. A rise in leaving air temperature causes the reheat control to modulate from open to closed. A further rise in leaving air temperature cause the remote condensing unit to modulate from closed to open. A drop in leaving air temperature reverses the sequence.
5. Space Humidity Control: A space humidity sensor provides input to a software based PID control loop. The output of this control loop shall override the above sequences to maintain space humidity and space temperature when the space humidity rises above 60% RH. When this override is in effect, a virtual point shall indicate that the humidity loop is 'on - dehumidification'. The remote condensing unit shall modulate from closed to open to maintain humidity set point (non-adjustable). The reheat control shall modulate from closed to open to maintain space temperature. On a further rise in space humidity the fan speed

shall increase from a minimum to a maximum (adjustable). A drop in space humidity shall reverse this sequence.

6. Un-occupied Operation: A general building operating schedule shall be established for the operation of this system. During unoccupied conditions, this system shall be disabled, and the supply and exhaust fans turned off.

J. Outdoor Pool Building System (AHU-2):

1. Overview: This system consists of a single constant volume air handling system. This system consists of filters, cooling coil, re-heat coil and supply air fan.
2. Start-up/Schedule: The air handling system shall operate base upon the general building operating schedule. If all safeties are satisfied, then the DDC shall enable the air handling unit system. Once enabled the supply air fan shall be started.
3. Space Temperature Control: A discharge air temperature control loop shall maintain a leaving air temperature set point of 55°F (adjustable) unless overridden by another portion of this sequence. A software based PID control loop shall modulate the remote condensing unit and the reheat module in sequence to maintain leaving air temperature set point. A rise in leaving air temperature causes the reheat control to modulate from open to closed. A further rise in leaving air temperature cause the remote condensing unit to modulate from closed to open. A drop in leaving air temperature reverses the sequence.
4. Un-occupied Operation: A general building operating schedule shall be established for the operation of this system. During unoccupied conditions, this system shall be disabled, and the supply and exhaust fans turned off.

K. Make-Up Air Handling Unit (MAU-1):

1. Overview: This system consists of a 100 % outdoor air ventilation unit. This system consists of: an outdoor air damper, return air damper, filters, DX cooling coil, reheat coil and supply air fan with VFD. The unit serves pressure-independent type variable air volume units.
2. Safeties: A freezestat shall be provided and interlocked as described in the Miscellaneous System Control Requirements of this specification.

Upon a freezestat condition, the DDC system shall command the outdoor air damper to the closed position. The re-heat valve shall be placed opened to the full coil flow position.

An outside air damper end-switch (provided by division 15) shall be interlocked with the supply fan to prevent the fan from operating until the damper is 50% open.

3. Supply Fan Control: An input sensing the static pressure at the location shown on the drawings provides an input to the DDC panel. The output is used to modulate the fan speed as required to maintain 1 inch w.c. static pressure relative to the return plenum (adjustable). As the static pressure rises, the fan speed decreases. As the static pressure drops, the fan speed increases.
4. Discharge Temperature Control: A discharge air temperature control loop shall maintain a leaving air temperature set point of 52°F (adjustable) unless overridden by another portion of this sequence. A software based PID control loop shall modulate the remote condensing unit and the reheat valve in sequence to maintain leaving air temperature set point. A rise in leaving air temperature causes the reheat control to modulate from open to closed. A further rise in leaving air temperature cause the remote condensing unit to modulate from closed to open. A drop in leaving air temperature reverses the sequence.
5. Un-occupied Operation: A general building operating schedule shall be established for the operation of this system. During unoccupied conditions, this system shall be turned off. The supply fan shall be disabled, and after a two minute delay, the outdoor air damper shall be closed.
6. Coil Freeze Protection Pump: Under normal operation the DDC system shall command the pump "On" when outside air temperature is below 40°F (adjustable). The pump shall operate continuously. Upon loss of proof of operation, the DDC shall place the system in alarm and notify the workstation operator. The DDC shall command the pump "Off" at an outside air temperature above 45°F.
7. Supply Fan Start/Stop Control: The air handling system shall operate based upon the general building operating schedule. If all safeties are satisfied, then the DDC shall enable the air handling unit system.

The start-up sequence for the unit shall initially open the outdoor air damper, which will permit the supply air fan to start. Upon proof from

the damper end switch, the supply air fan shall be enabled, and the system operational.

Any wiring not shown on the electrical drawings that is required to implement these functions shall also be provided under this section of the specification. Items not normally installed by Division 16 shall also be installed under Section 15950 of the specification.

If all of the safeties described in the preceding paragraphs are satisfied, then the fan shall run continuously when the selector switch is placed in the Auto position, and the computer has commanded the fan on.

The following functions shall be provided by the DDC system.

These functions shall be completely furnished and wired from the starter switch on under Section 15950 of the specification.

An optimized start/stop sequence from the DDC system shall operate the supply fan on a programmed schedule.

The DDC shall provide input signal to the VFD based on duct pressure.

The DDC shall monitor the VFD through a direct interface.

L. Natatorium Dehumidification Unit System (PAU-1 &2):

1. Overview: The natatorium dehumidification system consists of a packaged pool dehumidification unit with stand-alone temperature and humidity controls.
2. Safeties: The natatorium space temperature and humidity shall be monitored by the DDC system to provide a high level alarm condition upon an increase of space humidity above 60 % RH (adjustable) or space temperature above 88°F (adjustable).

The status of this system shall be monitored by the DDC system through the unit safety circuit and alarm at the workstation upon receipt of unit failure.

3. Operation: The DDC system shall schedule the dehumidification unit by enabling/disabling the system based upon the building operating schedule. (Under normal operation, the system shall be enabled 24 hours a day.)

4. Natatorium Make-up Air System Components: Upon loss of proof of operation of the make-up air handling unit, the operation of the Natatorium Dehumidification system shall be modified to permit the supply of outdoor air as well as maintain air to the perimeter supply.

Upon loss of proof of operation of the make-up air handling unit, the make-up air damper will close, and the transfer air damper will open. The DDC will then enable the transfer fan (TF-1). A magnetic starter shall be provided for TF-1, equipped with an overload protection, auxiliary contacts, and Hand-Off-Auto switch under Division 16. An overload trip shall shut down and lockout the fan regardless of the selector switch position. Manual reset will be required to resume normal operation.

5. Natatorium Make-up Air Re-heat Coil: A temperature sensor located on the east side of the Natatorium shall provide an input to a software based PID type control loop. The output of this loop shall be used to establish a virtual (calculated) point to be used as the discharge air temperature set-point that shall be modulated between a minimum temperature of 65 F (adjustable) and a maximum temperature of 95 F (adjustable). The discharge air temperature set-point shall then be used as an input into a second PID type control loop to modulate the re-heat coil control valve to maintain the calculated discharge air temperature as required to maintain space temperature.

M. Heat Recovery Unit (HRU-1):

1. Overview: These systems consist of general building exhaust fans and starters supplied under Division 16.
2. Safeties: The status of each exhaust fan shall be monitored by the DDC system via a current sensing relay provided for each fan. The operator workstation shall be notified upon failure of each fan independently.
3. Automatic Fan Operation: Automatic exhaust fans shall be operated on the general building schedule. A magnetic starter shall be provided for each fan equipped with an overload protection, auxiliary contacts, and Hand-Off-Auto switch under Division 16. An overload trip shall shut down and lockout the fan regardless of the selector switch position. Manual reset will be required to resume normal operation.
4. Switched Fan Operation: These fans shall be controlled by a local disconnect switch (provided by Division 16). A manual starter shall be provided for each fan equipped with an overload protection, auxiliary contacts, and Hand-Off switch under Division 16. An overload trip

shall shut down and lockout the fan regardless of the selector switch position. Manual reset will be required to resume normal operation.

5. Manual Fan Operation: (For operation of general exhaust fans not covered above). These small exhaust fans shall be operated continuously. A manual starter shall be provided for each fan equipped with an overload protection, auxiliary contacts, and Hand-Off switch under Division 16. An overload trip shall shut down and lockout the fan regardless of the selector switch position. Manual reset will be required to resume normal operation.

N. Cabinet Unit Heaters:

1. Overview: System shall consist of unit heaters with heating coil, fan, and factory supplied controls including 2-position, 2-way control valves and thermostat.
2. Operation: A two-position, high voltage thermostat furnished by the fan coil manufacture and installed by the Temperature Control Contractor shall sense room temperature and modulate the two position heating and cooling valves to maintain space temperature of 75°F (adjustable).

O. Exhaust and Transfer Fans:

1. Overview: System shall consist of unit heaters with heating coil, fan and factory supplied controls including 2-position, 2-way control valve and thermostat.
2. A two-position, high voltage thermostat furnished by the fan coil manufacture and installed by the Temperature Control Contractor shall sense room temperature and modulated the two position heating and cooling valves to maintain space temperature of 70°F (adjustable).

GENERAL REQUIREMENTS

1. PREPARATION OF BIDS

- A. Bids must be made in triplicate upon the prescribed forms. All blank spaces must be filled in as noted, in ink or typed, in both words and figures with amounts extended and totaled, and no changes shall be made in phraseology of the forms or in the items mentioned therein. In case of any discrepancy between the written amounts and the figures, the written amount shall govern. Any bid may be deemed non-responsive which contains any omissions, erasures, alterations, additions, irregularities, of any kind, or items not called for, or which does not contain prices set opposite to each of the several items in the bid forms, or in which any of the prices are obviously unbalanced.
- B. The bidder shall sign his bid in the blank space provided therefore. If the bid is made by a partnership or a corporation, the name and address of the partnership or corporation shall be shown, together with the names and addresses of the partners or officers. If the bid is made by a partnership, it must be signed by all authorized partners; if made by a corporation, it must be signed by an authorized officer thereof with a certification of authorization attached to the bid.

2. CONDITIONS OF WORK

Each bidder must inform himself fully of the conditions relating to the construction and labor under which the work will be performed, and will be presumed to have inspected the site and to have read and to be thoroughly familiar with the Contract Documents. Failure to do so will not relieve the successful bidder of his obligation to furnish all labor, material and equipment necessary to carry out the provisions of the Contract Documents and to complete the contemplated work for the consideration set forth in this bid.

3. REMOVAL OF CONSTRUCTION EQUIPMENT, TOOLS AND SUPPLIES

At the termination of this Contract, before acceptance of the work by the Parks Superintendent, the Contractor shall remove all of his equipment, tools, and supplies from the property of the City (also referred to herein as the "Owner"). Should the Contractor fail to remove such equipment, tools, and supplies; the Owner shall have the right to remove them, at the expense of the Contractor.

4. EXTENSION OF CONTRACT TIME

- A. A delay beyond the Contractor's control occasioned by an Act of God, or act of omission on the part of the Owner, by strikes, lockouts, fire, flood, tornado, earthquake, or other cause beyond the reasonable control of Contractor, may entitle the Contractor to an extension of time in which to complete the work as determined by the Parks Superintendent, provided, however, that the Contractor shall immediately give substantiated written notice to the Parks Superintendent on the cause of such delay.
- B. Contract Documents include the Contract Agreement, Contractor's Bid as accepted by the City, the General Requirements, specifications and all Addenda (if any) issued prior to and all modifications issued after execution of the Contract Agreement.

5. LIQUIDATED DAMAGES

- A. The Contractor shall commence work promptly in accordance with these specifications. Contractor shall prosecute the work vigorously and diligently so as to insure completion within the time stipulated in the Contract.
- B. If, in the opinion of the Contractor, he is delayed by any act or neglect of the Owner, or any representative of the Owner, or by changed in the work ordered in writing by the Owner, or by strikes, lockouts, fire, tornado, earthquake, or any other cause beyond the reasonable control of the contractor, he shall, within ten (10) consecutive days from the start of such delay, enter a written claim to the Parks Superintendent that such delay occurred and his substantiation for such claim.
- C. Time is expressly declared to be of the essence in completion of work covered by the Contract Documents. It is agreed that the Owner may deduct from the contract price and retain as liquidated damages, and not as penalty or forfeiture, the sum stipulated in the accepted contract for each calendar day, except Sundays and Holidays, after date specified for completion of the project that the entire work is not substantially completed.
- D. The term "substantially complete" as used herein shall be construed to mean the completion of the entire work in strict accordance with all requirements of the specifications except minor items which, in the opinion of the Parks Superintendent, will not interfere with the complete and satisfactory use of the facilities.
- E. Liquidated damages or any matter related thereto shall not relieve the Contractor or his Surety of any responsibility obligation under this Contract.

- F. Act of God means an earthquake, flood, tornado, or other cataclysmic phenomenon of nature. Rain, wind, flood or other natural phenomenon of normal intensity for the locality shall not be construed as an Act of God and no reparation shall be made to the Contractor for damages to the work resulting therefrom.

6. BID SECURITY

- A. Each bid must be accompanied by a deposit of not less than ten (10%) percent of the amount of the gross sum named in the bid. The deposit shall consist of a certified check, a cashier's check or a bid bond payable to the Owner. Within ten (10) days after the formal opening of bids, all checks or bid bonds will be returned, except those deposited by the three (3) lowest formal bidders. The remaining checks or bid bonds, with the exception of the bid security of the successful bidder, will be returned within seven (7) days after the execution of the Contract between the successful bidder and the Owner. The bid security of the successful bidder will be returned to him, without interest, when construction contract is executed and satisfactory performance bond is delivered to the Owner.
- B. Should the successful bidder fail or refuse to execute the bond and the contract required within ten (10) days after he has received notice of the acceptance of his bid, he shall forfeit to the Owner, as liquidated damages for such failure to refuse, the security deposited with his bid.

7. SECURITY FOR FAITHFUL PERFORMANCE

- A. Pursuant to Section 107.170 RSMo., and simultaneously with his delivery of the executed contract, the successful bidder must deliver to the Owner an executed bond in the amount of one hundred (100%) percent of the accepted bid as security for the faithful performance of his contract and for the payment of all persons performing labor or furnishing materials in connection therewith, prepared on bond forms and having a surety thereon such surety company or companies approved by the Owner and authorized to transact business in the State of Missouri.
- B. If the Contractor is a partnership, the bond shall be signed by all of the individuals who are partners; if a corporation, the bond shall be signed in the correct corporation name by the duly authorized officer, agent or attorney-in-fact. There shall be executed an appropriate number of counterparts of the bond corresponding to the number of counterparts of the Contract. Each executed bond shall be accompanied by (a) an appropriate acknowledgment of the respective parties, (b) an appropriate duly certified copy of Power-of-Attorney or other certificate of authority where bond is executed by agent, officer, or other representative of the Contractor or surety, (c) a duly certified extract from the By-Laws or Resolutions of Surety under which Power-of-

Attorney or other certificate of authority of its agent, officer, or representative was issued, and (d) a duly certified copy of the latest published financial statement of assets and liabilities of Surety.

8. PRIVATE PROPERTY

The Contractor shall not enter upon private property for any purpose without first obtaining permission, and he shall be responsible for the preservation of all public and private property, trees, monuments, etc., along an adjacent to the easements and shall use every precaution necessary to prevent damage or injury thereto. He shall use suitable precautions to prevent damage to pipes, conduits, fences, and other underground structures, and shall protect carefully from disturbance or damage all monuments and property marks until an authorized agent has witnessed or otherwise referenced their location and shall not remove them until directed. All costs for the repairs or replacement of public and private property for utilities damaged by the construction pertains shall be the responsibility of the Contractor.

9. WARNING SIGNS AND BARRICADES

The Contractor shall provide adequate signs, barricades, and red lights and shall take all necessary precautions for the protection of the work and the safety of the public. All barricades and obstructions shall be protected at night by signal lights which shall be kept burning from sunset to sunrise. Barricades shall be of substantial construction. Suitable warning signs shall be so placed and illuminated at night so as to show, in advance, where construction barricades or materials exist.

10. PUBLIC SAFETY AND CONVENIENCE

The Contractor shall, at all times, so conduct his work as to insure the least possible obstruction to traffic and inconvenience to the general public and the residents in the vicinity of the work, and to insure the protection of persons and property in a manner satisfactory to the Parks Superintendent. No road, street or walkway shall be closed to the public except with the permission of the Parks Superintendent and proper governmental authority. Fire hydrants on or adjacent to the work shall be kept accessible to fire-fighting equipment at all times. Temporary provisions shall be made by the Contractor to insure the use of sidewalks and the proper functioning of all gutters, shall not be obstructed except as approved by the Parks Superintendent and as permitted by law.

11. RESPONSIBILITY OF THE CONTRACTOR

Unless specifically noted otherwise, the Contractor shall furnish all materials and services and perform all the work described by the Contract Documents or shall

have all materials and services furnished and all the work performed at his expense. It shall be the Contractor's responsibility to pay for:

- (1) Cost of bid preparation
- (2) Bid & Performance Bonds
- (3) Royalties
- (4) Permits and Licenses, including a City of Arnold business license

12. MATERIALS, APPLIANCES, UTILITIES, EMPLOYEES

Unless otherwise provided and stipulated within these specifications, the Contractor shall furnish, construct, install and pay for material, devices, mechanisms, equipment, labor, water, heat, light, electric power, transportation services, applicable taxes of every nature, permit fees, and all other facilities necessary for the proper execution, completion and testing of the work and equipment.

13. INSURANCE, LEGAL RESPONSIBILITY AND PUBLIC SAFETY

A. **INSURANCE:** The Contractor shall obtain and maintain such insurance from an insurance company satisfactory to Owner and authorized to write casualty insurance in the State of Missouri as will protect himself, his subcontractors and the Owner from claims for bodily injury, death or property damage which may arise from any and all operations and under this Contract. Any such insurance policy shall name the Owner as an additional named insured. The Contractor shall not commence work under this contract until he has obtained all insurance required under this paragraph and shall have filed the certificate of insurance or the certified copy of the insurance policy with the Owner. Each insurance policy shall contain a clause providing that it shall not be cancelled by the insurance company without thirty (30) days written notice to the Owner of an intention to cancel. The amounts of such insurance shall be as indicated below:

(This certificate of insurance shall indicate the City of Arnold as additional insured and contain the appropriate signed endorsements as required by the City.)

(1) Workmen's Compensation and Employer's Liability Insurance:

Workmen's Compensation and Employer's Liability Insurance shall be secured and maintained as required by State where the work is located.

(2) Public Liability, Bodily Injury, and Property Damage:

- a. Injury or death of one person \$1,000,000
- b. Injury to more than one person
in a single accident \$2,000,000
- c. Property Damage \$1,000,000

(3) Automobile and Truck Public Liability, Bodily Injury, and Property Damage:

- a. Injury or death of one person \$1,000,000
- b. Injury to more than one person
in a single accident \$2,000,000
- c. Property Damage \$1,000,000

(4) If the contractor maintains higher limits than the minimums required above, the City requires and shall be entitled to coverage for the higher limits maintained by the contractor.

(5) If the City determines appropriate a certificate of insurance must be filed with the City providing builders risk insurance for the proposed project.

B. INDEMNITY: The Contractor shall indemnify and save harmless City and its officers and agents and employees from and against all losses and all claims, demands, payments, suits, actions, recoveries and judgments of every nature or act of the Contractor, his agents or employees, in the execution of the work or in the guarding of it.

C. No provision of this agreement shall constitute a waiver of the City's right to assert a defense basis on sovereign immunity, official immunity of any other immunity available under law.

14. MEASUREMENTS AND PAYMENT

The Contractor may periodically submit, but not more than once each month, a request for payment for work done. The Contractor shall furnish the City of Arnold all reasonable documentation required for obtaining the necessary information relative to the progress and execution of work, including, but not limited to, certified weight tickets for all materials delivered and used on the job. The payment shall be based on the quantities actually completed, less five (5%) percent to be retained until final completion acceptance of the work and less previous payments. The Owner shall take action within thirty (30) days from the date of approval of a request for payment by the Finance Department, all in accordance with the Prompt Payment Act (Section 34.057 RSMo).

15. WAGES

The Contractor shall pay the prevailing wage rates for all labor as established by the State of Missouri for the Jefferson County area. In no case will less than minimum wage be paid to anyone working on the construction project. A partial copy of the prevailing wage law is included in the bid specifications. It will be necessary for the Contractor to submit an affidavit to the City to verify compliance with the law. The City also reserves the right to request the Contractor show proof of wage law compliance at any time during the project, all in accordance with the Prevailing Wage Law (Section 290.210 RSMo.) The contractor shall forfeit a penalty to the City of \$100 per day for each worker that is paid less than the prevailing rate for any work done under this contract by the contractor or by any subcontractor.

16. NON-COLLUSION FORM

All bidders shall sign non-collusion form attached to the bid form, have same notarized, and returned with the bid form.

17. SUBCONTRACTORS

If the successful bidder intends to use a subcontractor(s) for any portion of the work, the successful bidder shall submit a written notice to the City and receive approval for use of the subcontractor(s) prior to commencing work.

18. FINAL PAY AFFIDAVIT

Upon completion of all work, the successful bidder shall submit a final pay affidavit, provided by the City and lien waivers for all work from all suppliers and subcontractors. The successful bidder shall also submit a certified copy of the payroll in accordance with the Prevailing Wage Rates and Missouri Work Authorization Affidavits for the period from the date the Notice to Proceed is issued through the completion of the project.

19. FEDERAL WORK AUTHORIZATION AFFIDAVIT

Pursuant to Section 285-530 RSMo, Contractor shall provide the City with a sworn Affidavit affirming its enrollment and participation in a Federal work authorization program.

20. SAFETY TRAINING AFFIDAVIT

Pursuant to Section 292.675 RSMo., Contractor and its subcontractors shall provide the City proof that all on-site project employees have completed a ten (10) hour course in OSHA approved construction safety and health training, such proof to be provided within 60 days of the date project work commences.

21. FAILURE TO PROVIDE SAFETY TRAINING

Pursuant to Section 292-675 RSMo, Contractor shall forfeit to the City, as a penalty, \$2,500 plus \$100 for each on-site employee of Contractor or its subcontractors, for each calendar day, or portion thereof, such on-site employee is employed without the safety training required under Section 20 above.

22. PROOF OF LAWFUL PRESENCE

Bidders on Public Works contracts are considered applicants for a public benefit and, therefore, the Contractor must comply with the laws of the State of Missouri. Affirmative proof of lawful presence can be established by the Contractor providing a copy of a Missouri driver's license, any document evidence recognized by the Department of Revenue, or any document issued by the Federal government that confirms lawful presence in the United States. A copy of such documentation shall accompany the Contractor's bid.

23. PURCHASE OF AMERICAN PRODUCTS

RSMo Section 34.353 requires each contract made by a public agency for construction, alteration, repair or maintenance of any Public Works shall require any manufactured goods or commodities used or supplied in the performance of this project contract shall be manufactured or produced in the United States.

The Contractor shall provide the City with an affidavit to confirm compliance with Missouri law.

24. WASTE

Surplus waste materials resulting from the work shall be disposed of in accordance with the St. Louis County or Jefferson County Waste Management Code. The Contractor shall comply with the following requirements in securing waste areas for disposal on non-contaminated earth and rock excavation.

- (1) The site shall not be in a flood plain.
- (2) Letters of permission and release are required from the affected property owner or owners.
- (3) Precautions shall be taken to insure that surface water or storm culvert drainage is not interrupted.
- (4) The waste disposal area shall be maintained in a proper manner and meet all the environmental requirements which may be applicable by the governing jurisdiction.
- (5) Erosion control measures shall be instituted as required.

The Contractor will be required to procure from the proper authorities all permits which may be required to haul over public or private streets and any hauling

operations of Contractor shall be subject to the requirements of such permits and other applicable City regulations and ordinances.

25. MATERIAL BUYOUT

The Owner reserves the right to benefit from its tax-exempt status from Missouri sales tax by paying for some of the building materials and equipment direct. The Contractor shall cooperate fully to help the City realize this benefit. The Owner will let the Contractor know which materials and equipment it wishes to pay for directly and the Contractor shall credit the Owner's contract price a sum equal to the price paid for the subject material or equipment plus the full amount of the sales tax that would normally be due on the subject item. The City shall provide a Missouri Project Exemption Certificate upon request.

26. AMERICAN DISABILITIES ACT (ADA)

The Contractor shall comply with the current ADA requirements. (For ADA compliance consultation, refer to the Americans with Disabilities Act Accessibility Guidelines [ADAAG].) Relay Missouri phone number 1-800-735-2966 TDD; add a (v) behind your phone number.

27. INTERPRETATION OF DOCUMENTS

If any person contemplating submitting a bid is in doubt as to the true meaning of any part of this Request, or finds discrepancies in, or omissions, he may submit to the City a written request for an interpretation or correction thereof.

Any interpretation or correction of the bid request document will be made only by Addendum duly issued by the City, and a copy of such Addendum will be mailed to each person who received a Request for Bids by mail. The City will not be required to mail addenda to those persons who retrieved the Request for Bids from the City's website. It is the responsibility of these contractors to review www.arnoldmo.org for any addenda prior to submitting their responses. The City will not be responsible for any other explanation or interpretation of the Request.

28. SELECTION CRITERIA

Awards shall be determined by and be based upon the best proposal, which, in the discretion of the department head and/or City Council, is the proposal that most adequately meets the needs of the City, officer, department, or using agency at the lowest price. In determining the best proposal, in addition to price, the department head may consider:

- A. Quality, availability and functional or other suitability of the personal property, or contractual services to the particular use intended.

B. Other factors, including, but not limited to, the following:

- (1) The ability, capacity and skill of the bidder to perform the contract or provide the service required.
- (2) Whether the bidder can perform the contract or provide the service promptly, or within the time specified, without delay or interference.
- (3) The character, integrity, reputation, judgment, experience and efficiency of the bidder.
- (4) The quality of performance of previous contracts or services.
- (5) The previous and existing compliance by the bidder with laws and ordinances relating to the contract or service.
- (6) The sufficiency of the financial resources and ability of the bidder to perform the contract or provide the service.
- (7) The ability of the bidder to provide future maintenance and service for the use of the subject of the contract, and
- (8) The number and scope of conditions attached to the bid.

C. Whether the bidder is in default on the payment of taxes, licenses or other moneys due to the City. This factor alone shall justify disqualification.

D. When, in response to a bid proposal issued by the City, two (2) or more proposals meets the City's bid specifications/requirements and are deemed sufficiently equal, a local bid preference shall be given to businesses located within the corporate limits of the City if the bid presented by said business is within five (5) percent of the lowest qualifying bid.

29. CONTRACT TIME:

This project shall be completed in 60 calendar days from the time the notice to proceed (NTP) is issued.

30. HOLD HARMLESS AGREEMENT:

Hold Harmless Agreement must be completed by the Contractor (form enclosed).

Hold Harmless Agreement

To the fullest extent permitted by law, _____, hereafter referred to as Contractor, agrees to indemnify, defend and hold harmless the City of Arnold, its officers, agents, volunteers, invitees, lessees and employees from and against any and all suits, claims, damages losses and expenses, including but not limited to attorneys' fees, court costs or alternative dispute resolution costs arising out of or related to any such suit, claim, damage, loss or expense involving an injury to a person or persons, whether bodily injury or other personal injury (including death), or involving an injury or damage to property (including loss of use or diminution in value), but only to the extent that such suits, claims, damages, losses or expenses were caused by the negligence or other wrongdoing of Contractor, or of any supplier or subcontractor, or their agents or employees, directly or indirectly, regardless of whether caused in part by the negligence or wrongdoing of CITY or any of its agents or employees.

Pursuant to the requirements of the bid and contract for **HVAC Replacement Project**, Contractor shall purchase and maintain the following insurance, at Contractor's expense:

- Commercial General Liability Insurance with a minimum limit of \$1,000,000 each occurrence/\$2,000,000 general aggregate written on an occurrence basis. If Contractor maintains higher limits than the minimums required, the CITY requires and shall be entitled to coverage for the higher limits maintained by Contractor.
- Workers Compensation Insurance with statutorily limits required by any applicable Federal or State law and Employers Liability insurance with minimum limit of \$1,000,000 per accident.

Contractor shall make CITY an additional insured on each policy of insurance that Contractor is required to maintain. Similarly, Contractor shall require insurance with the same coverage and limits from its subcontractors and suppliers, and their insurance policies shall be endorsed to name the same additional insureds as required of Contractor. Any coverage available to CITY as a named insured shall be secondary, so that the coverage to the CITY as an additional insured on the policies maintained by Contractor and Contractor's subcontractors is primary and non-contributory. CITY reserves the right to selectively trigger any one or more insurance policies that afford CITY coverage, whether as a named insured or as an additional insured. Contractor agrees that CITY shall be provided at least thirty (30) days advance written notice of any cancellation or rescission of any policy that Contractor or any of its subcontractors or suppliers is required to maintain under the contract documents. Prior to commencing work, Contractor shall provide CITY

certificates of insurance and endorsements evidencing the required coverage. CITY's receipt or review of any certificate of insurance reflecting that Contractor or one of its subcontractors or suppliers has failed or may have failed to comply with any insurance requirement shall not constitute a waiver of any of CITY's insurance rights under the contract documents, with all such rights being fully and completely reserved by the CITY.

No provision of this agreement shall constitute a waiver of the CITY's right to assert a defense based on the doctrines of sovereign immunity, official immunity or any other immunity available under law.

CONTRACTOR

DATE

COUNTY OF _____)

OSHA AFFIDAVIT

(NAME OF COMPANY)

REPLACEMENT PROJECT at the City of Arnold in Jefferson County, Missouri. Said training of all project workmen has been or will be undertaken within 60 days of commencement of construction of the project. The Contractor is to provide to the City copies of OSHA certifications cards of each project workman.

(SIGNATURE)

Subscribed and sworn to before me this _____ day of _____, 20_____

Notary Public

My commission expires on:_____

STATE OF MISSOURI)
COUNTY OF _____) SS

AFFIDAVIT
COMPLIANCE WITH THE PREVAILING WAGE LAW

Before me, the undersigned Notary Public, personally came and appeared

_____ of
(NAME) (POSITION)

(NAME OF COMPANY)

(a corporation) (a partnership) (a proprietorship) and, after being duly sworn, did depose and say that all provisions and requirements set out in Section 290, Sections 290.210 through and including 290.340, Missouri Revised Statutes, pertaining to the payment of wages to workmen employed on public works projects have been fully satisfied and there has been no exception to the full and complete compliance with said provisions and requirements and with Wage Determination No. _____ issued by the Division of Labor Standards on the _____ day of _____, 20____, in carrying out the contract and work in connection with **THE ARNOLD RECREATION CENTER HVAC REPLACEMENT PROJECT** located in the City of Arnold in Jefferson County, Missouri, and completed on the _____ day of _____, 20____.

(SIGNATURE)

Subscribed and sworn to before me this _____ day of _____, 20_____

Notary Public

My commission expires on:_____

STATE OF MISSOURI)
COUNTY OF _____) ss

AFFIDAVIT OF AMERICAN PRODUCTS PURCHASE

Comes now before me _____ as _____ of _____,
(NAME) (OFFICE HELD) (COMPANY NAME)

being duly sworn on his/her oath, affirms that said company has complied with Missouri State Law Section 34-353 RSMo regarding the purchase of manufactured good or commodities used or supplied in the performance of the City of Arnold's **ARNOLD RECREATION HVAC REPLACEMENT PROJECT**.

I also affirm that _____ (company name) did not and would not knowingly purchase or supply manufactured goods or commodities used on the aforementioned City of Arnold project, being compliant with the law. In affirmation thereof, the facts stated above are true and correct (the undersigned understands that false statements made in this filing are subject to penalties provided under Section 575.040 RSMo).

SIGNATURE (PERSON WITH AUTHORITY)

(PRINTED NAME)

(TITLE)

(DATE)

Subscribed and sworn to before me this _____ day of _____, 20____.

Notary Public

My commission expires on:_____

FINAL PAY AFFIDAVIT

_____ being duly sworn in oath deposed and states:

I. That in connection with this procurement,

- a. The prices in this bid have been arrived at independently, without consultation, communication, or agreement, for the purpose of restricting competition as to any matter relating to such prices with any other bidder or with any competitor;
- b. The prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening directly or indirectly to any other bidder; or to any competitor; and,
- c. No attempt has been made or will be made by the bidder to induce any other person or firm to submit or not to submit a bid for the purpose of restricting competition.

II. The undersigned further states:

- a. He is the person in the bidders' organization responsible within that organization for the decision as to the prices being bid herein and that he has not participated, and will not participate, in any action contrary to (I) (a) through (I) (c) above.
- b. He is not the person in the bidder's organization responsible within that organization for the decision as to the prices being bid herein but that he has been authorized in writing to act as agent for the persons responsible for such decision in certifying that such persons have not participated, and will not participate, in any action contrary to (I) (a) through (I) (c) above, and as their agent does hereby so certify; and he has not participated, and will not participate in any action contrary to (I) (a) through (I) (c) above.

III. The Contractor hereby attests to their intent to comply with the American with Disabilities Act. (ADA).

IV. It is expressly understood that the foregoing statements, representations, and promises are made as a condition to the right of the bidder to receive payment under any award made hereunder.

For Corporations

(NAME, INDICATE IF CORPORATION,
PARTNERSHIP OR SOLE PROPRIETOR)

(Corporate Seal)

(OFFICE HELD IN BIDDER ORGANIZATION)

ATTEST:

By _____

Subscribed and sworn to before me this _____ day of _____, 20_____.

Notary Public

My commission expires on: _____

Affidavit of Work Authorization

Comes now _____ (name) as _____ (office held) first being duly sworn, on my oath, affirm _____ (company name) is enrolled and will continue to participate in a federal work authorization program in respect to employees that will work in connection with the contracted services related to **THE ARNOLD RECREATION CENTER HVAC REPLACEMENT PROJECT** for the duration of the contract, if awarded in accordance with RSMo Chapter 285.530 (2). I also affirm that _____ (company name) does not and will not knowingly employ a person who is an unauthorized alien in connection with the contracted services related to **THE ARNOLD RECREATION CENTER HVAC REPLACEMENT PROJECT** for the duration of the contract, if awarded.

In Affirmation thereof, the facts stated above are true and correct (The undersigned understands that false statements made in this filing are subject to the penalties provided under Section 575.040, RSMo).

Signature

Printed Name

Title

Date

Subscribed and sworn before me the _____ day of _____. I am commissioned as a notary public within the county of _____. State of _____, and my commission expires on _____.

Signature of notary

Date

EXHIBIT A

BID FORM

HVAC REPLACEMENT FOR ARNOLD RECREATION CENTER

Please fill out this cost response form so that the City may accurately compare different bids without having to interpret vendor's cost presentations. If desired, attach additional cost data, including itemizations.

Company Name: _____

Date: _____

City of Arnold
2101 Jeffco Boulevard
Arnold, Missouri 63010

Mayor and City Council Members:

In accordance with the advertisement inviting Bids for HVAC Replacement for Arnold Recreation Center to the City of Arnold, subject to the conditions and requirements of the Contract and the Product Specifications including Addenda Nos. _____, _____, and _____, hereto attached, which so far as they relate to the Bid, are made a part of it, the undersigned herewith proposes to begin the specified work within ten (10) days after receipt of notice to proceed, for the following unit prices:

HVAC Replacement for Arnold Recreation Center as described above in specifications in this bid (Trane Manufacturer).

\$ _____

Name of Equal Manufacturer

_____ \$ _____

SIGNATURES ON NEXT PAGE

The Undersigned understands and agrees that the City of Arnold may, at its discretion, elect to delete areas, prior to the notice to proceed.

The Undersigned understands that items incidental to the project including but not limited to any final cleanup and disposals are included in the above costs.

The undersigned has examined the Specifications for, and the location of, the project and has satisfied himself as to the work to be done and the conditions under which it must be carried out.

NAME OF BUSINESS _____

(If an Individual)

SIGNATURE OF BIDDER _____

BUSINESS ADDRESS _____

TELEPHONE NO. _____

(If Co-Partnership)

FIRM NAME _____

SIGNATURE _____

BUSINESS ADDRESS _____

TELEPHONE NO. _____

(If a Corporation)

CORPORATE NAME _____

SIGNATURE _____

BUSINESS ADDRESS _____

TELEPHONE NO. _____

Exhibit C
Contract Agreement

THIS AGREEMENT, made and concluded this _____ day of _____ 2017, by and between _____, hereinafter called the "Contractor", and the City of Arnold, Missouri, hereinafter called the "City".

WITNESSETH, THAT, whereas the Council of the City of Arnold by motion adopted at a meeting held on _____, and by virtue of authority vested in said Council, has awarded to the Contractor the work of performing certain construction.

NOW, THEREFORE, the Contractor and the City, for the consideration hereinafter named, agree as follows:

Article 1. SCOPE OF WORK:

The Contractor shall furnish all materials and everything necessary to perform, in accordance with the Specifications and terms of this Contract, the work of providing HVAC REPLACEMENT FOR ARNOLD RECREATION CENTER for the City of Arnold, Missouri.

Article 2. TIME OF COMPLETION:

Delivery must begin within sixty (60) days after written notice to proceed shall have been given to the Contractor and shall be carried on at a rate to secure its full completion within ten (10) working days excluding commissioning.

Article 3. CONTRACT PRICE:

The City shall pay to the Contractor for the performance of the work a sum not to exceed \$ _____ subject to additions and deductions provided herein.

Article 4. PAYMENTS TO CONTRACTOR:

At least twenty (20) days before the City Council meeting at which the progress payment shall be presented for approval (but not more often than once a month), the Contractor will submit to the Owner a partial payment estimate filled out and signed by the Contractor covering the work performed during the period covered by the partial payment estimate and supported by such data as the Owner may reasonably require. If required, certified payrolls must accompany each partial payment request. The Owner will, within ten (10) days after receipt of each partial payment estimate, either submit it to Council for approval of payment, or return the partial payment estimate to the Contractor indicating in writing its reasons for refusing to approve payment. In the latter case, the Contractor may make the necessary corrections and resubmit the partial payment estimate. The Owner will, within ten (10) days following the first regular

Council meeting at which the pay request can be put on the Council meeting agenda, pay the Contractor a progress payment on the basis of the approved partial payment estimate. Regular Council meetings are held on first and third Thursdays of each month and the agenda for the Council meeting is set seven (7) days prior to each meeting. The Owner shall retain ten percent (10%) of the amount of each payment until final completion and acceptance of all work covered by the Contract Documents. Authorized extra work shall be included in these monthly progress payments. Submission of an executed project completion endorsement is required with final payment request.

- a. No payment shall be made for materials delivered or stored on the site.
- b. When the work provided for under this Contract has been fully completed in accordance with the terms thereof, the Owner shall make a final inspection and the Contractor shall remedy any defects arising out of said inspection. After final acceptance of the work by the Owner and receipt of final endorsement, final payment shall be made based on the price stated in Article 3.
- c. From the final payment shall be retained all monies expended by the Owner according to the terms of this Contract, and thereunder chargeable to the Contractor, all monies payable to the Owner, as liquidated damages, and all deductions provided by Contract, State Laws, or Ordinances of the City of Arnold.
- d. The Contractor will indemnify and save the Owner or the Owner's agents harmless from all claims growing out of the lawful demands of subcontractors, laborers, workers, mechanics, furnisher of material, and furnisher of machinery and parts thereof, equipment, tools, and all supplies, incurred in the furtherance of the performance of the work. The Contractor shall, at the Owner's request, furnish satisfactory evidence that all obligations of the nature designated above have been paid, discharged, or waived. If the Contractor fails to do so, the Owner may, after having notified the Contractor, either pay unpaid bills or withhold from the Contractor's unpaid compensation a sum until satisfactory evidence is furnished that all liabilities have been fully discharged, whereupon payment to the Contractor shall be made, in accordance with the terms of the Contract Documents, but in no event shall the provisions of this sentence be construed to impose any obligations upon the Owner to either the Contractor, his Surety, or any third party. In paying any unpaid bills of the Contractor, any payment so made by the Owner shall be considered as a payment made under the Contract Documents by the Owner to the Contractor and the Owner shall not be liable to the Contractor for any such payments made in good faith.

Article 5. GUARANTEE:

The Contractor and his Surety hereby expressly guarantee the aforesaid work as to

workmanship and quality of materials used in connection therewith, for a period of one year, commencing on the date of acceptance of the work or improvements, and binds himself, his successors or assigns, to make all replacements which may become necessary within that time due to nonconformity with the Specifications. Whenever notified by the City that said replacements are required, the Contractor shall, at once, make the same as directed, and at his own expense. If the Contractor does not proceed with such replacements within five (5) days of receipt of written notice, then the City shall have the power to cause the same to be made and to charge the cost thereof to the Contractor. Nothing in this Section is intended as a maintenance guarantee.

Article 6. INSURANCE:

The Contractor will be required to furnish Public Liability and Property Damage Insurance and endorsement in amounts as specified in the General Conditions and coverage to name the City of Arnold, Missouri, in addition to the Contractor, so that the City of Arnold is not only protected from all claims but also protected in that legal service will be rendered to defend all suits against the Contractor and the City. The Contractor shall be required to furnish the Owner with satisfactory proof of carriage of the insurance required along with applicable endorsement before notice to proceed is given. Submission of an executed project completion endorsement is required with final payment request.

Article 7. PREVAILING WAGES:

This Contract shall be based upon the payment by the Contractor and his subcontractors of wage rates not less than the prevailing hourly wage rate for each craft or type of workers engaged on the work. Prevailing wage rates shall be as determined by the United States Department of Labor and the Industrial Commission of Missouri. In case of conflict, the wages paid by the Contractor shall be not less than the higher of the prevailing wage determinations.

In compliance with the Prevailing Wage Law, as Amended in Sections 290.210 to 290.340 inclusive, Revised Statutes of Missouri, 1986, not less than the prevailing hourly rate of wages shall be paid to all workers performing work under this Contract, Section 290.250. The Contractor shall forfeit to the City Ten Dollars (\$10.00) for each worker employed, for each calendar day, or portion thereof, such worker is paid less than the stipulated rates for any work done under said Contract, by him or any subcontractor under him.

Article 8. STATUTORY AND REGULATORY COMPLIANCE:

In addition to the Prevailing Wage Law compliance obligation referenced above, it is the responsibility of the Contractor to ensure compliance with all federal, state and local requirements, including, but not limited to, the following Revised Statutes of the State of Missouri:

292.675 RSMo. OSHA Training.

290.550 et seq. –580 RSMo. Excessive Unemployment.

34.353 et seq. RSMo. American Products.

The above list is not intended to be exhaustive; and the compliance requirement of this provision is continuing and must be satisfied during the entirety of this Agreement.

It is the sole responsibility of the Contractor to ensure that this provision is satisfied; and the City assumes no responsibility or liability for the failure to comply. Any penalty incurred as a result of noncompliance or failure to comply will be borne solely by the Contractor.

Article 9. THE CONTRACT DOCUMENTS:

The Advertisement, Information for Bidders, the Specifications, including Addenda Nos. ____, ____, ____, and ____, and the Bid, together with this Agreement, form the Contract.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed in four (4) original counterparts as of the day and year first above written.

SIGNATURES ON NEXT PAGE

CONTRACT SIGNATURES

CITY OF ARNOLD
2101 Jeffco Blvd.
Arnold, Missouri 63010

Contractor

Contractor Address

By: _____
Ron Counts, Mayor

By: _____
(Signature)

(Title)

ATTEST:

By: _____
Tammi Casey, City Clerk

By: _____
(Signature)

Date

(Title)

(SEAL)

Date

Telephone No.

(SEAL)

APPROVED AS TO FORM:

City Attorney