



# CITY OF HOUSTON

## INVITATION TO BID

Issued: April 13, 2011

### **Bid Opening:**

Sealed bids, in duplicate, will be received by the City Secretary of the City of Houston, in the City Hall Annex, Public Level, 900 Bagby, Houston, Texas 77002 until **10:30 A.M. Thursday, May 10, 2012**, and all bids will be opened and publicly read in the City Council Chamber, City Hall Annex, Public Level, 900 Bagby at 11:00 A.M. on that date for the purchase of:

### **REMOVE, FURNISH AND INSTALL AN AIR-COOLED CHILLER AND ASSOCIATED EQUIPMENT FOR THE PUBLIC WORKS AND ENGINEERING DEPARTMENT**

**Invitation to Bid No. S50-C24246  
NIGP Code: 914-50 / 120-32 / 031-13**

### **Buyer:**

Questions regarding this solicitation should be addressed to Arturo Lopez, Senior Procurement Specialist, at **832-393-8731** or e-mail to [arturo.lopez@houstontx.gov](mailto:arturo.lopez@houstontx.gov).

### **Electronic Bidding:**

In order to submit a bid for the items associated with this procurement, you must fill in the pricing information on the "PLACE BID" page.

### **Prebid Conference:**

A Pre-Bid Conference will be held for all Prospective Bidders in the Strategic Purchasing Division, Concourse Level (Basement), Conference Room #1, City Hall, 901 Bagby, at 10:00 am. on **Wednesday, April 25, 2012**. The site visit will be scheduled at the pre-bid conference.

**All Prospective Bidders are urged to be present. It is the bidder's responsibility to ensure that they have secured and thoroughly reviewed all aspects of the solicitation documents prior to the Pre-Bid Conference. Any revisions to be incorporated into this solicitation document arising from discussions before, during and subsequent to the Pre-Bid Conference will be confirmed in writing by Letter(s) of Clarification prior to the bid due date. Verbal responses will not otherwise alter the specifications, terms and conditions as stated herein.**

Bidding forms, specifications, and all necessary information should be downloaded from the Internet at [www.purchasing.houstontx.gov](http://www.purchasing.houstontx.gov). By registering and downloading this solicitation document, all updates to this solicitation document will be automatically forwarded via e-mail to any registered bidders. This information may also be obtained from the Supplier Assistance Desk, Strategic Purchasing Division, 901 Bagby, Concourse Level, Houston, Texas 77002.

The place of the bid opening may be transferred in accordance with Paragraph (b), (5) of Section 15-3 of The Code of Ordinances, Houston, Texas. The bid-opening meeting may be rescheduled in accordance with Paragraph (b), (6) of said Section 15-3.

**The City reserves the right to reject any or all bids, or to accept any bid or combination of bids deemed advantageous to it.**

City employees are prohibited from bidding on this solicitation in accordance with the Code of Ordinances Section 15-1.

### **\*CONTENTS:**

- A. OFFER
- B. SCOPE OF WORK/SPECIFICATIONS
- C. GENERAL, SUPPLEMENTARY CONDITIONS AND BOND FORMS

\*NOTE 1: Actual page numbers for each section may change when the solicitation document is downloaded from the Internet or because of letters of clarification. Therefore, bidders must read the solicitation document in its entirety and comply with all the requirements set forth therein.

\*NOTE 2: **To be considered for award please submit the electronic bid form and the forms listed in section A, including the signature page, which must be signed by a company official authorized to bind the company and a 10% Bid Bond.**

## SECTION A



**FORMAL ONE-TIME BID  
REMOVE, FURNISH AND INSTALL AN AIR-COOLED CHILLER AND ASSOCIATED EQUIPMENT  
FOR THE PUBLIC WORKS & ENGINEERING DEPARTMENT  
Bid No. S50-C24246  
NIGP Code: 914-50 / 120-32 / 031-13**

To The Honorable Mayor  
and City Council Members  
of the City of Houston, Texas (the "City"):

The undersigned hereby offers to provide services necessary to **Remove, Furnish and Install an Air-Cooled Chiller and Associated Equipment at the Wastewater Operations Laboratory, located at 10500 Bellaire Blvd, Houston, TX 77079 for the Public Works and Engineering Department**, F.O.B. destination point Houston, Texas, in accordance with the City's Specifications and General Terms & Conditions and/or samples/drawings provided herein. When issued by the City of Houston, Letters of Clarification shall automatically become part of this bid document and shall supersede any previous specifications or provisions in conflict with Letters of Clarification. It is the responsibility of the bidder to ensure that it has obtained all such letters. By submitting a bid on this project, bidder shall be deemed to have received all Letters of Clarification and to have incorporated them into the bid.

The City may accept this bid offer by issuance of a Notice of Award Letter and/or a Purchase Order at any time on or before the 120th day following the day this Official Bid Form is opened by the City. This offer shall be irrevocable for 120 days after bid opening or for 90 days after City Council awards the bid, whichever comes last, but this period may be extended by written agreement of the parties.

**The City reserves the right to INCREASE quantities during the twelve-month period following the issuance of the first purchase order subject to agreement in writing by the Prime Contractor/Supplier to honor the same bid price.**

The City reserves the option, after bids are opened, to adjust the quantities listed on the electronic bid form upward or downward, subject to the availability of funds, and/or make award (s) on a line item basis.

## SECTION A

**Documents/forms must be downloaded from the City's Website**  
**<http://www.houstontx.gov/purchasing/index.html>**

### **Additional Required Forms to be Included with this bid:**

In addition to the electronic Bid Form and the Official Signature Page, the Forms listed in Table 1 **must be completed and submitted to the Office of the City Secretary on or before the date and time the bid is due:**

<b>Table 1</b>
Affidavit of Ownership
Fair Campaign Ordinance
Statement of Residence
Conflict of Interest Questionnaire
Contractors References
Pay or Play Contract Compliance Acknowledgement Form
10% Bid Bond

Table 2 lists other documents and forms that should be viewed/downloaded from the City's website, but are not required to be submitted with the bid. The City will request these forms, as applicable, to be completed and submitted to the City by the recommended/successful bidder:

<b>Table 2</b>
Formal Instructions for Bid Terms
Drug Forms
Insurance Certificates Over \$50,000.00
OCP Insurance Certificate Over \$100,000.00
Performance, Maintenance and Statutory Payment Bonds
Construction 2012 Engineering Wage Decision
M/WBE Subcontracting Participation Certification
Pay or Play Certification of Agreement to Comply with Program
Pay or Play Form 3 / List of Participating Contractors

Questions concerning the Bid should be submitted in writing to: City of Houston, Strategic Purchasing Division, 901 Bagby, Room B506, Houston, TX 77002, Attn: Arturo Lopez or via fax: 832-393-8759 or via email (preferred method) to [arturo.lopez@houstontx.gov](mailto:arturo.lopez@houstontx.gov) no later than **4:00 PM, Monday, April 30, 2012.**

### **M/WBE COMPLIANCE:**

For M/WBE goal information, see SECTION C, Document 00800, SUPPLEMENTAL CONDITIONS, Article 3 entitled "THE CONTRACTOR" on page 18 of 27.

**QUALITY AND WORKMANSHIP:**

The bidder must be able to demonstrate upon request that it has performed satisfactorily, services similar to the services specified herein. The bidder will provide records of warranty and repair services performed for others upon request. The City of Houston shall be the sole judge whether the services performed are similar to the scope of services specified herein.

**PERMITS:**

Successful Contractor shall be responsible for securing any and all permits for proposed work. Any fee charged for these permits should be the responsibility of the Contractor and not the City of Houston.

**CITY BUILDING CODES:**

All work performed or equipment installed shall be in strict accordance with the City of Houston Building Codes. The Contractor will immediately correct any deficiencies discovered during work or after completion. Failure to correct deficiencies will result in the City having corrections made at the Contractor's expense.

**BID BOND:**

The Contractor shall be required to provide and submit with the bid a Bid Bond in the amount of 10% of the total amount bid by the Contractor. The Bid Bond shall be in the same form as that distributed by the City, and attached hereto, all duly executed by this Bidder (as "Principal") and by a corporate surety company licensed to do business in the State of Texas, and if the amount of the bond is greater than \$100,000.00 the surety must hold a certificate of authority from the United States Secretary of the Treasury, or a Cashier's or a Certified check in a like amount. Company or personal checks are not acceptable.

**PERFORMANCE BOND and PAYMENT BOND:**

The successful Contractor(s) shall be required to provide a Performance and Payment Bond in the total amount (100%) of the Contract if the award is in excess of \$25,000.00.

The Performance and/or Payment Bond shall be in the same form as that distributed by the City, and attached hereto, all duly executed by this bidder (as "Principal") and by an incorporated surety company licensed to do business in the State of Texas. If the amount of the bond is greater than \$100,000.00 the surety must hold a certificate of authority from the United States Secretary of the Treasury.

The Contractor(s) shall be required to provide a Performance and/or Payment Bond as outlined above, which will be delivered to the City Purchasing Agent of the City, on or before the tenth (10<sup>th</sup>) day following the day the bidder receives notice from the City.

**MAINTENANCE BOND:**

The Contractor shall furnish a maintenance bond in the total (100%) bid amount in the form required by the City (samples attached). One bond, also referred to as the One Year Maintenance Bond, will be conditioned upon Contractor's repair, replacement or

restoration of any work or any portion of the work which is found to be defective or fails in any way to comply strictly with this contract or the plans and specifications for such work within a period of one (1) year from the date of acceptance of such work by the City Council or after the date that the "CO", or his designee in writing, determines, in a written notice to the Contractor, to be the date upon which the project is both substantially complete and available for the full and beneficial occupancy or use of the City.

### **SITE INSPECTION:**

The City of Houston reserves the right to inspect the bidder's current place of business to evaluate equipment condition and capabilities, staff experience, training and capabilities, and storage capabilities as they relate to the performance of this contract.

The City will have the right to inspect all Contractor furnished materials and workmanship during the course of the work.

### **HIRE HOUSTON FIRST:**

#### **Designation as a City Business or Local Business**

To be designated as a City or Local Business for the purposes of the Hire Houston First Program, as set out in Article XI of Chapter 15 of the Houston City Code, a bidder or proposer must submit the **Hire Houston First Application and Affidavit ("HHF Affidavit")** to the Director of the Mayor's Office of Business Opportunities and receive notice that the submission has been approved prior to award of a contract. Bidders are encouraged to secure a designation prior to submission of a bid or proposal if at all possible.

**Download the HHF Affidavit** from the Office of Business Opportunities Webpage at the City of Houston e-Government Website at the following location:

[www.houstontx.gov/obo/moreforms/hirehoustonfirstaffidavit.pdf](http://www.houstontx.gov/obo/moreforms/hirehoustonfirstaffidavit.pdf)

*Submit the completed application forms to: Mayor's Office of Business Opportunity, One Stop Business Center, 900 Bagby St., Public Level, Houston, TX 77002 or Applications may be submitted via e-mail to [HHF-MOBO@houstontx.gov](mailto:HHF-MOBO@houstontx.gov) or faxed to 832.393.0952.*

#### **Award of Procurement of \$100,000 or More for Purchase of Non-Professional Services , Including Construction Services:**

THE CITY WILL AWARD THIS PROCUREMENT TO A " CITY BUSINESS," AS THAT TERM IS DEFINED IN SECTION 15-176 OF THE CITY OF HOUSTON CODE OF ORDINANCES ("THE CODE"):

- IF THE BID OF THE LOCAL BUSINESS IS THE LOWEST RESPONSIBLE BID OR IS WITHIN 3% OF THE LOWEST BID RECEIVED, AND
- UNLESS THE USER DEPARTMENT DETERMINES THAT SUCH AN AWARD WOULD UNDULY INTERFERE WITH CONTRACT NEEDS, AS PROVIDED IN SECTION 15-181 OF THE CODE.

IF THERE IS NO BID OF A LOCAL BUSINESS THAT MEETS THESE CRITERIA, THE CITY WILL AWARD THE PROCUREMENT TO THE LOWEST RESPONSIBLE BIDDER.

**Award of Procurement under \$100,000 Purchase of Non-Professional Services Including Construction Services:**

THE CITY WILL AWARD THIS PROCUREMENT TO A "LOCAL BUSINESS," AS THAT TERM IS DEFINED IN SECTION 15-176 OF THE CITY OF HOUSTON CODE OF ORDINANCES ("THE CODE"):

- IF THE BID OF THE CITY BUSINESS IS THE LOWEST RESPONSIBLE BID OR IS WITHIN 5% OF THE LOWEST BID RECEIVED, AND
- UNLESS THE USER DEPARTMENT DETERMINES THAT SUCH AN AWARD WOULD UNDULY INTERFERE WITH CONTRACT NEEDS, AS PROVIDED IN SECTION 15-181 OF THE CODE.

IF THERE IS NO BID OF A LOCAL BUSINESS THAT MEETS THESE CRITERIA, THE CITY WILL AWARD THE PROCUREMENT TO THE LOWEST RESPONSIBLE BIDDER.

**Award of Procurement that may be More or Less than \$100,000 for Purchase of Non-Professional Services, Including Construction Services:**

THE CITY WILL AWARD THIS PROCUREMENT TO A "LOCAL BUSINESS," AS THAT TERM IS DEFINED IN SECTION 15-176 OF THE CITY OF HOUSTON CODE OF ORDINANCES ("THE CODE"):

- IF THE BID OF THE LOCAL BUSINESS IS LESS THAN \$100,000 AND IS THE LOWEST RESPONSIBLE BID OR IS WITHIN 5% OF THE LOWEST BID RECEIVED, OR
- IF THE BID OF THE LOCAL BUSINESS IS MORE THAN \$100,000 AND IS THE LOWEST RESPONSIBLE BID OR IS WITHIN 3% OF THE LOWEST BID RECEIVED, AND
- UNLESS THE USER DEPARTMENT DETERMINES THAT SUCH AN AWARD WOULD UNDULY INTERFERE WITH CONTRACT NEEDS, AS PROVIDED IN SECTION 15-181 OF THE CODE.

IF THERE IS NO BID OF A LOCAL BUSINESS THAT MEETS THESE CRITERIA, THE CITY WILL AWARD THE PROCUREMENT TO THE LOWEST RESPONSIBLE BIDDER.

**INTERLOCAL AGREEMENTS:**

Under the same terms and conditions hereunder, the Contract may be expanded to other government entities through inter-local agreements between the City of Houston and the respective government entity that encompass all or part of the products/services provided under this contract. Separate contracts will be drawn to reflect the needs of each participating entity.

**CONTRACTOR'S QUESTIONNAIRE**

In order to receive bid award consideration, the bidder must be able to demonstrate that they are currently providing or have had at least one contract, to ***remove, furnish and install an air-cooled chiller and associated equipment*** that is similar in size and scope to this contract. **Bidder must have references documenting that it has performed removal, furnishing and installation of air-cooled chillers and associated equipment.** The reference(s) should be included in the space provided below. Please attach another piece of paper if necessary. If references are not included with the bid, the bidder shall be required to provide such references to the City of Houston within five working days from receipt of a written request from the City of Houston to do so. **Bidder's capability and experience shall be a factor in determining the Contractor's responsibility.**

1. Business Name: \_\_\_\_\_

Business Address: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

**Name of Owner/Contact Person:** \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ Email: \_\_\_\_\_

No. of Years providing Service to this business: \_\_\_\_\_

2. Business Name: \_\_\_\_\_

Business Address: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

**Name of Owner/Contact Person:** \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ Email: \_\_\_\_\_

No. of Years providing Service to this business: \_\_\_\_\_

3. Business Name: \_\_\_\_\_

Business Address: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

**Name of Owner/Contact Person:** \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ Email: \_\_\_\_\_

No. of Years providing Service to this business: \_\_\_\_\_

4. Business Name: \_\_\_\_\_

Business Address: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

**Name of Owner/Contact Person:** \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ Email: \_\_\_\_\_

No. of Years providing Service to this business: \_\_\_\_\_

**SECTION B**  
**SCOPE OF WORK/SPECIFICATIONS**

**1.0 Summary of Scope of Work:**

**1.1 GENERAL**

- 1.1.1 The Contractor shall be required to provide all labor, equipment, tools, supervision, transportation and incidentals necessary to remove and properly dispose the existing 215 ton, Trane RTAA air-cooled chiller and associated equipment. Also, the Contractor shall be required to furnish and install a new 225 ton, air-cooled chiller and associated equipment at the Wastewater Operations Laboratory, located at 10500 Bellaire Blvd. The Contractor shall also be required to test, program and insure that all systems are in optimum working condition.
- 1.1.2 The Contractor shall be required to furnish and install the new system in the space occupied by the existing unit and be connected to the existing chill-water piping, electrical supply and building automation system wiring.
- 1.1.3 The Contractor shall be required to place the new chiller system on neoprene isolators, to include the electrical disconnect and reconnect, use the existing block valves and the existing building automation systems and controls shall be reconnected, to include factory startup.
- 1.1.4 All work shall be performed on straight time.

**2.0 Specified Equipment, or Equivalent:**

- 2.1 Wherever in the specifications any materials or processes are indicated or specified by patent of proprietary name and/or by name of manufacturer, such specifications shall be deemed to be used for the purpose of facilitating descriptions of the performance, materials and/or processes desired and shall be deemed to be followed by the words, "or equivalent", if not so stated in the specifications herein.
- 2.2 The burden of proof shall rest with the bidder, in the course of a technical evaluation, to prove that the proposed item(s) are equivalent to the performance, materials, processes, or articles specified. DETERMINATION AS TO WHETHER THE ITEM (S) BID IS (ARE) EQUIVALENT TO THOSE SPECIFIED SHALL REST SOLELY WITH THE CITY PURCHASING AGENT AND THE RECEIVING DEPARTMENT.

**3.0 Brand Name or Trade Name:**

- 3.1 Any manufacturer's names, trade names, brand names, or catalog numbers used in the specifications are for the purpose of describing and establishing the general quality level, design and performance desired. Such references are not intended to limit or restrict bidding by other

Contractors/Suppliers, but are intended to approximate the quality design or performance that is desired. Any bid that proposes like quality, design or performance, will be considered. Equivalent products will be considered, provided a complete description and product literature is provided. Unless a specific exception is made, the assumption will be that the item bid is exactly as specified on the Invitation to Bid.

**4.0 Performance Time:**

- 2.1 The work must be completed within **120 calendar days** after receipt of the purchase order. It shall be the Contractors responsibility to schedule and coordinate the work in such a manner as to complete the work within the specified time.

**5.0 Warranty:**

- 5.1 The Contractor shall warranty all materials, equipment, refrigerant, maintenance, labor and workmanship for ***five-years***. The Contractor shall be required to provide three quarterly and an annual inspection, per warranted year. A first year parts warranty is to be included, covering the whole unit.

## TECHNICAL SPECIFICATIONS

### 1.0 Equipment, General:

#### 1.1 Air-Cooled Helical Rotary Water Chiller:

Make: York

Model: YCIV0227PA46 or City Approved Equal

1.1.1 The Contractor shall be required to furnish and install a new 225-ton, air-cooled chiller and associated equipment, York Model No. YCIV0227PA46 or City approved equal at the Wastewater Operations Laboratory, located at 10500 Bellaire Blvd, Houston, Texas.

### 2.0 Power and Electrical:

2.1 The air-cooled chiller system shall have controls and motor starting equipment necessary for unit operation and shall be factory wired and function tested.

2.2 The chiller system shall have a variable frequency drive (VFD) and a power/control panel (PCP) which includes main power connection(s), VFD and fan motor contactors, current overloads and factory wiring. The standard design shall include a NEMA 3R (IP55) rating, powder painted steel cabinet with hinged, latched and gasket sealed outer doors equipped with wind struts for safer servicing.

2.3 The chiller system's VFD section power panel shall have a dedicated inverter for each compressor.

2.4 The chiller system's power panel shall have a control display access door so display and control features can be accessed without opening main cabinet doors.

2.5 The air-cooled chiller shall have a single point power connection. In addition, all models shall be supplied with a factory mounted and wired control transformer that will supply all unit control voltage from the main unit power supply. The transformer must utilize scheduled line voltage on the primary side and provide 115V/1Ø on the secondary side.

2.6 The chiller system shall have a standard power panel equipped with a terminal block electrical connection at the point of incoming power. Also, the chiller system shall be required to include a factory mounted circuit breaker at the point of the incoming single point connection, providing the means to disconnect power and short circuit protection. The circuit breaker shall include a lockable operating handle that extends through the power panel door so that power may be disconnected without opening any panel doors.

2.7 The chiller system's electrical enclosure shall have a short-circuit withstand rating of 30,000 amps for a standard terminal block connection.

- 2.8 The chiller system's compressor motor shall be powered by a VFD to prevent the motor current from exceeding the rated load amps (RLA), which shall provide soft starts with no electrical inrush.
  - 2.9 The air-cooled chiller system shall have a full load displacement power factor of 95% and maintain this level throughout the operating range. The Contractor shall be required to furnish and install power factor correction.
- 3.0 Semi-Hermetic Twin Screw Compressors:
- 3.1 The air-cooled chiller compressor shall operate in a continuous function and shall be microprocessor controlled. The VFD shall be required to provide a valveless, smooth capacity control from 100% down to 10% of chiller capacity for two compressor chillers, 100% down to 7.5% for three compressor chillers, and 100% down to 5% for four compressor chillers.
  - 3.2 The chiller system shall have a direct drive, semi hermetic, rotary twin-screw type compressor, including: a muffler, temperature actuated 'off-cycle' heater, rain-tight terminal box, discharge shut-off service valve, and a precision machined cast iron housing mounted on elastomeric isolators.
  - 3.3 The chiller system shall have a reliable suction-gas-cooled, high-efficiency, accessible hermetic compressor motor, a full suction gas flow through 0.006" maximum mesh screen with inherent internal thermal overload protection and an external current overload on all three phases.
  - 3.4 The chiller system shall have a suction gas screen and serviceable 0.5 micron full flow oil filter within the compressor housing.
  - 3.5 The chiller system shall have a cast iron compressor housing precisely machined for optimal clearances and superb efficiency. Also, the entire compressor, from suction to discharge shall have a design working pressure of 350 psig (24 barg) or higher.
- 4.0 Refrigerant Circuit:
- 4.1 The chiller system shall have independent refrigerant circuits per compressor, each using copper refrigerant pipe formed on computer-controlled bending machines.
  - 4.2 The chiller system shall have liquid line components which shall include:
    - 4.2.1 Liquid line shut-off valve with charging port,
    - 4.2.2 Low side pressure relief device,
    - 4.2.3 High adsorption removable core filter-drier,
    - 4.2.4 Sight glass with moisture-indicator, and electronic expansion valve.

- 4.3 The chiller system shall have a discharge line provided with a manual compressor shutoff service valve and a suction line equipped with closed-cell insulation.
  - 4.4 The chiller system shall have insulated external oil separators with no moving parts, 450 psig (31 barg) design working pressure, and UL listing. The refrigerant differential pressure shall provide oil flow through service replaceable, 0.5 micron, full flow and cartridge type oil filter internal to the compressor.
  - 4.5 The chiller system shall be oil cooled by a dedicated air-cooled finned-tube type heat exchanger located in the condenser section of the machine.
  - 4.6 The chiller system shall have a flash tank located in each refrigerant circuit to increase the system's efficiency. The design shall have working pressure of 450 psig (31 barg).
  - 4.7 The chiller system shall have suction lines, oil separators and flash tanks covered with closed-cell insulation.
- 5.0 Evaporator:
- 5.1 The chiller system's evaporator shall be a high efficiency, direct-expansion type cooler with refrigerant in tubes and chilled liquid through the baffled shell. It shall also have independent circuits provided for each compressor.
  - 5.2 The evaporator shall have design working pressure on the shell waterside of 150 psig (10.3 barg), and 235 psig (16 barg) on the refrigerant side. The evaporator shall be constructed and tested from the IAW applicable sections of ASME Pressure Vessel Code, Section VIII, and Division (1). The water side shall be exempt per paragraph U-1, ©, (6).
  - 5.3 The evaporator shall have removable heads to allow access to the internally-enhanced, seamless, copper tubes and shall have a water vent and drain connections.
  - 5.4 The evaporator shall be equipped with a thermostatically controlled heater for protection to -20°F (-29°C) ambient and the shell shall be covered with 3/4" (19mm), flexible, closed-cell insulation, thermal conductivity of 0.26k maximum and 1-1/2" (38mm) foam available as an option.
  - 5.5 The evaporator shall have water nozzles with grooves for mechanical (ANSI/ AWWA C-606) couplings and shall be insulated by the contractor.
- 6.0 Condenser Section:
- 6.1 The condenser fans shall be dynamically and statically balanced, direct-drive and have corrosion resistant glass with fiber reinforced composite blades. The fans shall be molded into a low noise, full airfoil cross

section, providing vertical air discharge from the extended orifices. The fan guards shall be of heavy gauge and PVC (polyvinyl chloride) coated.

- 6.2 The fan motors shall be a high efficiency, direct drive, 6 pole on standard sound models and 8 pole on reduced and low sound models. The fan shall be 3 phase, Class-“F”, current overload protected, totally enclosed (TEAO) type with double sealed, permanently lubricated, ball bearings.
- 6.3 The condenser shall have fin and tube coils constructed of seamless, internally enhanced, high condensing coefficient, corrosion resistant copper tubes. The coils shall be arranged in staggered rows and mechanically bonded to corrosion resistant aluminum alloy fins with full height fin collars. The coils shall have design working pressure of 450 psig (31 barg).

#### 7.0 Microcomputer Control Center:

- 7.1 The air-cooled chiller shall have a microcomputer control center which provides automatic control of the chiller operation. These operations include the compressor start/stop and load/unload, anti-recycle timers, condenser fans, evaporator pump, evaporator heater, unit alarm contacts and run signal contacts.
- 7.2 The chiller system shall automatically reset to normal chiller operation after power failure.
- 7.3 The unit operating software shall be stored in a non-volatile memory. The field programmable set points shall be retained in a lithium battery backed regulated time clock (RTC) memory for a minimum of five years.
- 7.4 The unit shall have alarm contacts to provide a remote alert for any unit or system safety fault.
- 7.5 The display and keypad shall provide the following:
  - 7.5.1 The display shall contain an 80 character liquid crystal display that is both viewable in direct sunlight and has LED backlighting for nighttime viewing. One keypad and display panel shall be provided.
  - 7.5.2 The display and keypad shall be accessible through display access door without opening the main control/electrical cabinet doors.
  - 7.5.3 The display shall have unit set points, status, electrical data, temperature data, pressures, safety lockouts and diagnostics without the use of a coded display.
  - 7.5.4 The display shall have descriptions in English (or available language options), numeric data in English (or Metric) units.
  - 7.5.5 The sealed keypad shall include a unit On/Off switch.

- 7.6 The unit shall have programmable set points (within manufacturer limits): display language; leaving chilled liquid temperature: set point, control range; local or remote control; units of measure; compressor lead/lag; and maximum chilled water set point reset temperature range.
- 7.7 Display Data shall provide:
  - 7.7.1 The chiller shall have liquid return and leaving temperatures, ambient, lead compressor identification, clock, schedule, (variable) out of range, remote input indication, chilled liquid reset setpoint, and history data for last ten shutdown faults. Also the display data shall provide messages for the compressor suction, discharge, oil pressures, temperatures, suction and discharge superheats, percent of full-load, operating hours, starts, and anti-recycle timer status. The display shall provide status messages for manual override, unit switch off, compressor run, run permissive, remote controlled shut down, no cooling load, daily/holiday shut down and anti-recycle timer.
- 7.8 During extreme or unusual conditions (i.e. blocked condenser coils, etc.) the chiller control system shall avoid a safety shut-down by varying the chiller controls and cooling load output to stay online and avoid safety limits being reached. The system shall have the capability to monitor the following parameters and maintain the maximum cooling output possible without shutdown of the equipment: motor current, suction pressure and discharge pressure.
- 7.9 The chiller control system shall have system safeties provided for individual compressor systems to perform auto-reset shut down (manual reset required after the third trip in 90 minutes). The safeties include: high discharge pressure or temperature, low suction pressure, high/low motor current, high motor temperature, high pressure switch, high/low differential oil pressure, high oil temperature, low suction superheat, critical sensor malfunction, low or high current, phase loss/single phase power, overload of motor windings, and low voltage.
- 7.10 The unit safeties shall be provided for the chiller to perform auto-reset shut down for the following conditions: high or low ambient, low leaving chilled liquid temperature, under voltage, and flow switch operation.
- 8.0 Complete Factory Package:
  - 8.1 The air-cooled chiller shall be shipped as a complete factory package. Each unit is completely assembled with all interconnecting refrigerant piping and internal wiring, ready for field installation.
  - 8.2 The compressor shall be installed on its own independent refrigerant circuit, which is factory pressure tested, evacuated, then fully charged with R134a refrigerant and oil.
  - 8.3 After assembly, an operational test shall be performed with water flowing

through the cooler to ensure each circuit operates correctly.

- 8.4 The unit panels, structural elements, control boxes and heavy gauge structural base shall be constructed of galvanized steel. The unit panels, control boxes and structural base shall be finished with a baked on powder paint. When painted surfaces are subject to ASTM B117, 1,000 hour, 5% salt spray test, the painted surfaces shall yield a minimum ASTM 1654 rating of "6".
- 8.5 The chiller system design shall have IAW applicable sections of ASME Pressure Vessel Code, NFPA 70 (National Electrical Code), U.L., cU.L. standards and ASHRAE/ANSI-15 safety code for mechanical refrigeration.
- 8.6 The chiller system unit shall be rated (all) and certified (140 - 200 tons) IAW AHRI Standard 550/590.
- 8.7 The chiller system design shall be IAW ASHRAE 90.1 energy standard for building except low-rise residential buildings and AHRI 70 sound rating of large outdoor refrigeration and air conditioning equipment.
- 8.8 The chiller system shall be designed within EN ISO 9001 and built within an EN ISO 9002 accredited manufacturing organization.
- 8.9 The chiller system exposed power wiring shall be routed through liquid-tight, UV-stabilized, non-metallic conduit.
- 9.0 Condenser Coil Protection:
  - 9.1 The standard condenser coil construction materials shall include aluminum fins, copper tubes, and galvanized tube supports for generally good corrosion resistance.
- 10.0 Pre-Coated Fin Condenser Coils:
  - 10.1 The air-cooled condenser coils shall be constructed of epoxy-coated aluminum fins.
  - 10.2 Protective Chiller Panels:
    - 10.2.1 Louvered (Condensers)/Wire Panels (Mechanical):
      - 10.2.1.1 The louvered panels shall be painted the same color as the unit and mounted on the external condenser coil face. The panels shall be constructed of heavy gauge, welded wire-mesh and coated to resist corrosion around base of machine to restrict unauthorized access. (Factory-mounted)
- 11.0 Flow Switch Accessory:

- 11.1 The chiller system shall have a vapor proof SPDT, NEMA 3R flow switch, The switch must meet or exceed 150 psig (10.3 barg) DWP, 20°F to 250°F (-7°C to 121°C) with 1" NPT (IPS) connection for upright mounting in horizontal pipe and shall be field-mounted.
- 12.0 Building Automation System Interface:
  - 12.1 The chiller system shall use BACnet communication protocol and shall be factory-mounted.
- 13.0 Service Isolation Valve
  - 13.1 The chiller system shall have a service suction isolation valve for each refrigerant circuit and shall be factory-mounted.
- 14.0 Pressure Relief (CE/PED) Service Valve Kit:
  - 14.1 The chiller system shall have a relief valve mounted on a sealable ball valve to aid maintenance and shall be factory-mounted.
- 15.0 Circuit Breaker:
  - 15.1 The chiller system shall have a power panel equipped with a factory mounted circuit breaker at the point of incoming single or multi-point connections that provides the following:
    - 15.1.1 A means to disconnect power mounted on chiller.
    - 15.1.2 Circuit breaker(s) sized to provide the motor branch circuit protection, short circuit protection and ground fault protection for the motor branch-circuit conductors, the motor control apparatus and the motors.
    - 15.1.3 A lockable operating handle that extends through power panel door. This allows power to be disconnected without opening any panel doors.
    - 15.1.4 A short circuit withstand rating of 65,000 amps when using circuit breaker options 380, 400, & 460. (Rated IAW UL508)
- 16.0 Vibration Isolation:
  - 16.1 Elastomeric Isolation:
    - 16.1.1 The chiller system shall have elastomeric isolation for normal installations. (Field-mounted)
- 17.0 Additional Required Items:
  - 17.1 The chiller system shall have a pre-coated fin condenser coil. The air-cooled condenser coil shall be constructed of epoxy-coated aluminum fins

and have corrosion resistance comparable to copper-fin coils in typical seashore locations.

- 17.2 The chiller system shall have a condenser air deflector to prevent recirculation of hot discharge air through condenser as a result of building aerodynamics. The condenser air deflector shall match the one on the existing York chiller installed in 2011. The City will furnish a structural drawing, if requested.

**END OF SECTION**

## SECTION C

### CITY OF HOUSTON 2012 ENGINEERING WAGE DECISION

A PDF version of the 2012 Engineering Wage Decision  
can be viewed on the following web Link

<https://purchasing.houstontx.gov/buyer/BidDocumentManager.aspx?id=C24246>

### GENERAL CONDITIONS

A PDF version of the General Conditions can be viewed on the following web link:

<https://purchasing.houstontx.gov/buyer/BidDocumentManager.aspx?id=C24246>

Document 00800

### SUPPLEMENTARY CONDITIONS

The following Paragraphs amend and supplement the 2005 edition of General Conditions. Unaltered portions of General Conditions remain in effect.

#### ARTICLE 3 - THE CONTRACTOR

3.5 *LABOR: Insert the following Paragraph 3.5.3.1.1.*

3.5.3.1.1 Contractor shall make good faith efforts to comply with the City ordinances regarding Minority and Women Business Enterprises (MWBE) and Persons with Disabilities Business Enterprises (PDBE) participation goals which are as follows:

- .1 *the MWBE goal is 11 percent*, and
- .2 the PDBE goal is 0 percent.

#### 3.28 **CONTRACTOR DEBT**

3.28.1 **IF CONTRACTOR, AT ANY TIME DURING THE TERM OF THIS AGREEMENT, INCURS A DEBT, AS THE WORD IS DEFINED IN SECTION 15-122 OF THE HOUSTON CITY CODE OF ORDINANCES, IT SHALL IMMEDIATELY NOTIFY CITY CONTROLLER IN WRITING. IF CITY CONTROLLER BECOMES AWARE THAT CONTRACTOR HAS INCURRED A DEBT, IT SHALL IMMEDIATELY NOTIFY CONTRACTOR IN WRITING. IF CONTRACTOR DOES NOT PAY THE DEBT WITHIN 30 DAYS OF EITHER SUCH NOTIFICATION, CITY CONTROLLER MAY DEDUCT FUNDS IN AN AMOUNT EQUAL TO THE DEBT FROM ANY PAYMENTS OWED TO CONTRACTOR UNDER THIS AGREEMENT, AND CONTRACTOR WAIVES ANY RECOURSE THEREFORE.**

## **ARTICLE 8 - TIME**

8.1 *PROGRESS AND COMPLETION: Delete Paragraph 8.1.6. and replace with the following 8.1.6.*

8.1.6.1 Contractor shall credit the City by Change Order for inspection services for overtime work or work performed on Sundays or Legal Holidays. The amount Contractor credits the City will be **\$50.00 per hour** per inspector for inspection services.

## **ARTICLE 9 - PAYMENTS AND COMPLETION**

9.1 *UNIT PRICE WORK: Delete Section 9.1 in its entirety and insert the following Section 9.1.*

9.1 References to Unit Prices in individual Specification sections are not applicable to the Contract. Include payment for portions of the Work required by these sections in the Stipulated Price for the Contract.

**9.12 LIQUIDATED DAMAGES: Insert the following Paragraph 9.12.1.1.**

**9.12.1.1 The amount of liquidated damages provided in General Conditions Paragraph 9.12.1 payable by Contractor or Surety for each and every day of delay beyond Contract Time, are \$500.00 per day.**

## **ARTICLE 11 - INSURANCE AND BONDS**

11.2 *INSURANCE TO BE PROVIDED BY CONTRACTOR: Delete Paragraph 11.2.8. and replace with the following 11.2.8.*

11.2.1.4 Contractor shall provide Owners and Contractor's Protective Liability Insurance only if the contractor's bid price is equal to or greater than \$100,000.00.

11.2.8 *Endorsement of Primary Insurance:* Each policy except Workers' Compensation Insurance must contain an endorsement that the policy is primary insurance to any other insurance available to additional insured with respect to claims arising under the Contract.

**CITY OF HOUSTON -- BIDDER'S BOND**

(Must be in an amount at least 10% of the bid. If the bid is upon alternates this bond must be for at least 10% of the highest amount for which the bidder offers to do any or all the work bid upon.)

THE STATE OF TEXAS

§  
§

KNOW ALL MEN BY

THESE PRESENTS:

COUNTY OF HARRIS

§

THAT WE, \_\_\_\_\_ as principal and the other subscriber hereto as Surety, do hereby acknowledge ourselves to be held and firmly bound to the City of Houston, a municipal corporation in the sum of \$\_\_\_\_\_ Dollars (\$\_\_\_\_\_).

The condition of this obligation is that: ---

WHEREAS, the said principal is submitting to the City of Houston his or its bid for the doing for the City of Houston of certain work and construction of which the following is a brief description, to-wit: ---

**Bid No. S50-C24246**

**REMOVE, FURNISH AND INSTALL AN AIR-COOLED CHILLER AND ASSOCIATED EQUIPMENT FOR THE PUBLIC WORKS AND ENGINEERING DEPARTMENT**

in accordance with the plans and specifications for such work upon which such bid is made, to which plans and specifications reference is made for a more full description of the work and construction referred to.

NOW, THEREFORE, if the said bidder is awarded the contract for such work, the said bidder will, within the time provided in the specifications, enter into a contract with the City therefore upon the form and to the purpose and intent provided in the specifications, will furnish insurance as required in the specifications and will furnish a good and sufficient construction surety bond executed by said bidder and one corporate surety organized under the laws of the State of Texas or authorized to do business in the State of Texas and having a fully paid up capital stock of not less than \$100,000.00 and duly licensed and qualified by the Board of Insurance Commissioners of the State of Texas, which bond shall be for an amount equal to 100 percent of the contract price and shall be conditioned in accordance with the requirements stated in the specifications upon which such bid is being submitted.

In the event said bidder is unable or fails to execute said contract for the work proposed to be done, is unable or fails to furnish insurance as specified or is unable or fails to furnish said construction bond in the amount and condition as aforesaid, the undersigned principal and surety shall be liable to said City of Houston for the full amount of this obligation which is here and now agreed upon and admitted as the amount of the damages which will be suffered by the City of Houston on account of the failure of such bidder to so comply with the terms of this bid.

Executed this \_\_\_\_\_ day of \_\_\_\_\_, A.D. 2011.

PRINCIPAL

By \_\_\_\_\_

By \_\_\_\_\_

\_\_\_\_\_  
Surety

**ONE-YEAR MAINTENANCE BOND**

**THAT WE,** \_\_\_\_\_, as Principal, hereinafter called Contractor, and the other subscriber hereto, \_\_\_\_\_, as Surety, do hereby acknowledge ourselves to be held and firmly bound to the City of Houston, a municipal corporation, in the sum of \$\_\_\_\_\_, for the payment of which sum well and truly to be made to the City of Houston and its successors, the said Contractor and Surety do bind themselves, their heirs, executors, administrators, successors, jointly and severally.

**THE CONDITIONS OF THIS OBLIGATION ARE SUCH THAT:**

**WHEREAS,** the Contractor has on or about this day executed a Contract in writing with the City of Houston for \_\_\_\_\_, all of such work to be done as set out in full in said Contract documents therein referred to and adopted by the City Council, all of which are made a part of this instrument as fully and completely as if set out in full herein.

**NOW THEREFORE,** if the said Contractor shall comply with the provisions of Paragraph 11.5.1 of the General Conditions, and correct work not in accordance with the Contract documents discovered within the established one-year period, then this obligation shall become null and void, and shall be of no further force and effect; otherwise, the same is to remain in full force and effect.

Notices required or permitted hereunder shall be in writing and shall be deemed delivered when actually received or, if earlier, on the third day following deposit in a United States Postal Service post office or receptacle, with proper postage affixed (certified mail, return receipt requested), addressed to the respective other party at the address prescribed in the Contract documents, or at such other address as the receiving party may hereafter prescribe by written notice to the sending party.

**IN WITNESS THEREOF,** the said Contractor and Surety have signed and sealed this instrument on the respective dates written below their signatures and have attached current Power of Attorney.

WITNESS: (if not a corporation)

Name of Contractor \_\_\_\_\_

By: \_\_\_\_\_  
Name:  
Title:

By: \_\_\_\_\_  
Name:  
Title:  
Date:

ATTEST/SURETY WITNESS:

(SEAL)

\_\_\_\_\_  
Full Name of Surety

\_\_\_\_\_  
Address of Surety for Notice

\_\_\_\_\_  
Telephone Number of Surety

By: \_\_\_\_\_  
Name:  
Title:  
Date:

By: \_\_\_\_\_  
Name:  
Title: Attorney-in-Fact  
Date:

**This Ordinance or Contract has been reviewed as to form by the undersigned legal assistant and have been found to meet established Legal Department criteria. The Legal Department has not reviewed the content of these documents.**

\_\_\_\_\_  
Legal Assistant

\_\_\_\_\_  
Date

## PERFORMANCE BOND

**THAT WE,** \_\_\_\_\_, as Principal, (the "Contractor"), and the other subscriber hereto, \_\_\_\_\_, as Surety, do hereby acknowledge ourselves to be held and firmly bound to the City of Houston (the "City"), a municipal corporation, in the penal sum of \$\_\_\_\_\_ for the payment of which sum, well and truly to be made to the City, its successors and assigns, Contractor and Surety do bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally.

### THE CONDITIONS OF THIS OBLIGATION ARE SUCH THAT:

**WHEREAS,** the Contractor has on or about this day executed a Contract in writing with the City for \_\_\_\_\_, \_\_\_\_\_, all of such work to be done as set out in full in said Contract documents therein referred to and adopted by the City Council, all of which are made a part of this instrument as fully and completely as if set out in full herein.

**NOW THEREFORE,** if the said Contractor shall faithfully and strictly perform the Contract in all its terms, provisions, and stipulations in accordance with its true meaning and effect, and in accordance with the Contract documents referred to therein and shall comply strictly with each and every provision of the Contract and with this Bond, then this obligation shall become null and void and shall have no further force and effect; otherwise the same is to remain in full force and effect. Should the Contractor fail to faithfully and strictly perform the Contract in all its terms, including but not limited to the indemnifications thereunder, the Surety shall be liable for all damages, losses, expenses and liabilities that the City may suffer in consequence thereof, as more fully set forth herein.

It is further understood and agreed that the Surety does hereby relieve the City or its representatives from the exercise of any diligence whatever in securing compliance on the part of the Contractor with the terms of the Contract, and the Surety agrees that it shall be bound to take notice of and shall be held to have knowledge of all acts or omissions of the Contractor in all matters pertaining to the Contract. The Surety understands and agrees that the provision in the Contract that the City will retain certain amounts due the Contractor until the expiration of 30 days from the acceptance of the Work is intended for the City's benefit, and the City will have the right to pay or withhold such retained amounts or any other amount owing under the Contract without changing or affecting the liability of the Surety hereon in any degree.

It is further expressly agreed by Surety that the City or its representatives are at liberty at any time, without notice to the Surety, to make any change in the Contract documents and in the Work to be done hereunder, as provided in the Contract, and in the terms and conditions thereof, or to make any change in, addition to, or deduction from the Work to be done hereunder; and that such changes, if made, shall not in any way vitiate the obligation in this Bond and undertaking or release the Surety there from.

It is further expressly agreed and understood that the Contractor and Surety will fully indemnify and save harmless the City from any liability, loss, cost, expense, or damage arising

out of Contractor's performance of the Contract.

If the City gives Surety notice of Contractor's default, Surety shall, within 45 days, take one of the following actions:

1. Arrange for Contractor, with consent of the City, to perform and complete the Contract; or
2. Take over and assume completion of the Contract itself, through its agents or through independent contractors, and become entitled to the payment of the balance of the Contract Price.

If the Surety fails to take either of the actions set out above, it shall be deemed to have waived its right to perform and complete the Contract and receive payment of the balance of the Contract Price and the City shall be entitled to enforce any remedies available at law, including but not limited to completing the Contract itself and recovering any cost in excess of the Original Contract Price from the Surety.

This Bond and all obligations created hereunder shall be performable in Harris County, Texas. This Bond is given in compliance with the provisions of Chapter 2253, Texas Government Code, as amended, which is incorporated herein by this reference.

Notices required or permitted hereunder shall be in writing and shall be deemed delivered when actually received or, if earlier, on the third day following deposit in a United States Postal Service post office or receptacle, with proper postage affixed (certified mail, return receipt requested), addressed to the respective other Party at the address prescribed in the Contract documents, or at such other address as the receiving party may hereafter prescribe by written notice to the sending party.

EXECUTED in multiple originals this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

ATTEST/SEAL: (if a corporation)

WITNESS: (if not corporation)

\_\_\_\_\_  
(Name of Principal)

\_\_\_\_\_  
(Address of Principal)

By: \_\_\_\_\_

Name:

Title:

Date:

By: \_\_\_\_\_

Name:

Title:

Date:

ATTEST/SEAL

SURETY WITNESS:

\_\_\_\_\_  
(Name of Surety)

\_\_\_\_\_  
(Address of Surety)

By: \_\_\_\_\_

Name:

Title:

Date:

By: \_\_\_\_\_

Name:

Title:

Date:

REVIEWED:

This Bond has been reviewed as to form by the undersigned Paralegal and has been found to meet established Legal Department criteria.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Paralegal

**STATUTORY PAYMENT BOND**

**THAT WE,** \_\_\_\_\_, as Principal, hereinafter called Contractor and the other subscriber hereto, \_\_\_\_\_, as Surety, do hereby acknowledge ourselves to be held and firmly bound unto the City of Houston, a municipal corporation, in the sum of \$\_\_\_\_\_ for the payment of which sum, well and truly to be made to the City of Houston, and its successors, the said Contractor and Surety do bind themselves, their heirs, executors, administrators, successors, jointly and severally.

**THE CONDITIONS OF THIS OBLIGATION ARE SUCH THAT:**

**WHEREAS,** the Contractor has on or about this day executed a contract in writing with the City of Houston for \_\_\_\_\_, all of such work to be done as set out in full in said Contract documents therein referred to and adopted by the City Council, all of which are made a part of this instrument as fully and completely as if set out in full herein;

**NOW, THEREFORE,** if the said Contractor shall pay all claimants supplying labor and materials to him or a Subcontractor in the prosecution of the Work provided for in the Contract, then, this obligation shall be void; otherwise the same is to remain in full force and effect;

**PROVIDED HOWEVER,** that this Bond is executed pursuant to the provisions of Chapter 2253, Texas Government Code, as amended, and all liabilities on this Bond shall be determined in accordance with the provisions of said Article to the same extent as if it were copied at length herein.

**IN WITNESS THEREOF,** the said Contractor and Surety have signed and sealed this instrument on the respective dates written below their signatures and have attached current Power of Attorney.

I

ATTEST, SEAL: (if a corporation)

WITNESS: (if not a corporation)

\_\_\_\_\_  
Name of Contractor

By: \_\_\_\_\_

Name:

Title:

By: \_\_\_\_\_

Name:

Title:

Date:

ATTEST/SURETY WITNESS:

(SEAL)

\_\_\_\_\_  
Full Name of Surety

\_\_\_\_\_  
Address of Surety for Notice

\_\_\_\_\_  
Telephone Number of Surety

By: \_\_\_\_\_

Name:

Title:

Date:

By: \_\_\_\_\_

Name:

Title: Attorney-in-Fact

Date:

**This Ordinance or Contract has been reviewed as to form by the undersigned legal assistant and have been found to meet established Legal Department criteria. The Legal Department has not reviewed the content of these documents.**

\_\_\_\_\_  
Legal Assistant

\_\_\_\_\_  
Date