

The bid requirements, contract requirements, specifications, schedules and drawings for

**City of Toronto - Union Station
3rd Floor Security Office Renovation**

are amended as follows:

SPECIFICATIONS

1.1 REVISED SPECIFICATIONS

- .1 The following revised specifications issued with this addendum supersede previously issued specifications of the same title and number
 - .1 Section No. 00 01 10_R1, Table of Contents

1.2 NEW SPECIFICATIONS

- .1 Add the following new specifications issued with this Addendum.
 - .1 Section No. 23 81 26, Split System Air Conditioners

DRAWINGS

1.3 REVISED DRAWINGS

- .1 The following Drawings are revised and re-issued with this addendum. Revisions are shown in bubbled areas on drawings. The following descriptions of revisions are for convenience only and do not define or limit the extent of actual revisions indicated on drawings:
 - .1 Drawing A00-00-00 COVER SHEET AND DRAWING LIST
 - .1 Add Electrical drawing number
 - .2 Drawing A20-03-06 THIRD FLOOR PLAN SECTOR PLAN
 - .1 Change boundaries on plan to indicate scope of work.
 - .3 Drawing A40-03-06 THIRD FLOOR PLAN ENLARGED PLANS
 - .1 Add locations of AC units on plan
 - .4 Drawing A41-03-06 THIRD FLOOR PLAN ENLARGED PLANS
 - .1 Add locations of AC units on plan
 - .2 Add typical structural support details
 - .5 Drawing A60-03-06 THIRD FLOOR PLAN ENLARGED REFLECTED CEILING PLANS
 - .1 Add additional demolition notes.

- .6 Drawing A80-03-06 THIRD FLOOR PLAN ENLARGED PLANS DEMOLITION
 - .1 Delete general demolition notes.
- .7 Drawing M00-03-06. Mechanical Drawing List , Legends & Details
 - .1 Mechanical drawing list has been revised.
 - .2 Mechanical legends have been revised.
 - .3 Mechanical details have been relocated on this page.
- .8 Drawing M21-03-06. Third Floor Plan Enlarged Plans Plumbing & Drainage Layout
 - .1 Mechanical drawing reference number for continuation has been revised.
 - .2 Part plan drawing numbers have been revised.
- .9 Drawing M41-03-06. Third Floor Plan Enlarged Plans Fire Protection Layout
 - .1 Mechanical drawing reference number for continuation has been revised.
 - .2 Part plan drawing numbers have been revised.
 - .3 Drawing reference notes have been added.
- .10 Drawing M51-03-06. Third Floor Plan Enlarged Plans HVAC Layout
 - .1 Mechanical drawing reference number for continuation has been revised.
 - .2 Part plan drawing numbers have been revised.
 - .3 Drawing reference notes have been added.
 - .4 Drawings notes #3 and #4 have been revised.
 - .5 One General Note has been removed.

1.4 **DELETED DRAWINGS**

- .1 Delete the following drawings in their entirety:
 - .1 Drawing M01-03-06. Mechanical Details

End of NORR Addendum No.1

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Project Manual for

**Union Station State of Good Repair
 3rd Floor Security Office Renovation**

SPECIFICATIONS

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PART - 1 GENERAL

1.1 SUMMARY

- .1 Conform to Sections of Division 01 as applicable.
- .2 Conform to General Mechanical Requirements Section 23 05 01 as applicable.

1.2 RELATED SECTIONS

- .1 Pipe, fittings and valves: refer to piping standards appended to Section 23 05 01.
- .2 Noise and Vibration Control: Section 23 05 48.
- .3 Piping insulation: Section 23 07 19.
- .4 Electrical wiring: Division 26.

1.3 REFERENCES

- .1 ACMA Standards
- .2 AFBMA Code
- .3 ANSI/ARI Standard 210 Unitary Air Conditioning and Air source Heat Pump Equipment
- .4 ANSI/ARI Standard 270 Standard For Sound Rating of Outdoor Unitary Equipment
- .5 ANSI/ARI Standard 430 Central Station Air Handling Units
- .6 ASHRAE 90.1-1989 Energy Efficient Design of New Buildings Except Low Rise Residential Buildings
- .7 ASTM A167-99 Standard Specification for Stainless and Heat-Resisting Chromium-Nickel steel Plate, and Strip.
- .8 CSA B52-99 Mechanical Refrigeration Code
- .9 CSA C22.1 (1990) Canadian Electrical Code
- .10 ANSI/ULC 465(1984) Air Conditioning Central Cooling

1.4 QUALITY ASSURANCE

- .1 Regulatory Requirements: Conform to the requirements of local by-laws, Ministry of Labour Regulations, and authorities having jurisdiction.

PART - 2 PRODUCTS

2.1 PIPE, FITTINGS AND VALVES

- .1 Furnish pipe, fittings and valves as required in accordance with Piping Standards appended to Section 23 05 01, Basic Mechanical Requirements.

2.2 SPLIT SYSTEM AIR CONDITIONING SYSTEM (AC)

- .1 Split system packaged air conditioners (PAC) are provided by the City of Toronto from stores located in the Union Station building. These PAC units were purchased under an earlier contract and have been in secure storage for several years.

- .2 Air conditioners and condensing units will be provided free issue to the contractor for installation in the locations shown in the plan. The following Part 2 product description is provided to the contractor to inform what features and quality standard the pre-purchased air conditioners were to include.
- .3 Design Requirements (Information Only)
 - .1 The variable capacity, air conditioning system shall be (heat/cool model) split system. The system shall consist of a wall mounted evaporator exclusively matched to outdoor model direct expansion (DX), air-cooled, variable speed driven compressor using R-410A refrigerant. The outdoor unit is a horizontal discharge air variable speed condenser fan using a single phase power supply. The system shall have a self diagnostic function, 3-minute time delay mechanism and have a factory pre-charge of R-410A. The system shall have automatic restart capability after a power failure has occurred and a low voltage cut-off feature to prevent stalling during power supply issues.
 - .2 The system shall have a total cooling capacity and power requirements as per the Mechanical Equipment Schedule.
 - .3 Indoor Unit
 - .1 General: The indoor unit shall be factory assembled and pre-wired with all necessary electronic and refrigerant controls. Both liquid and suction lines must be individually insulated between the outdoor and indoor units.
 - .1 Unit Cabinet:
 - .1 The indoor unit shall have a white, "flat screen" finish.
 - .2 The drain and refrigerant piping shall be accessible from six (6) positions for flexible installation (right side, right back, and right bottom; and left side, left back, and left bottom.
 - .3 The cabinet shall be supplied with a mounting plate to be installed onto a wall for securely mounting the cabinet.
 - .4 The cabinet includes an "intelligent-eye" motion sensor capable of setting back the set point temperature for energy savings. This feature may be disengaged on the wireless remote controller.
 - .2 Fan
 - .1 The evaporator fan shall be an assembly consisting of a direct-driven fan by a single motor.
 - .2 The fan shall be statically and dynamically balance and operate on a motor with permanent lubricated bearings.
 - .3 An auto-swing louver for adjustable air flow both vertically and horizontally) is standard via the wireless remote control furnished with each system.
 - .4 The indoor fan shall offer a choice of five speeds, plus quiet and auto settings.
 - .3 Filter
 - .1 The return air filter provided will be a mildew proof, removable and washable filter. Optional photo catalytic, air purifying filters are available.

- .4 Coil
 - .1 The evaporator coil shall be a nonferrous, aluminum fin on copper tube heat exchanger.
 - .2 All tube joints shall be brazed with silver alloy or phoscopper.
 - .3 All coils will be factory pressure tested.
 - .4 A condensate pan shall be provided under the coil with a drain connection.
- .5 Electrical
 - .1 The outdoor unit shall be powered with 208-230 volts, 1 phase, and 60 hertz power. The indoor unit shall receive 208-230 volt, 1 phase, 60 hertz power from the outdoor unit.
 - .2 The allowable voltage range shall be 187 volts to 253 volts.
- .6 Control
 - .1 The unit shall have a wireless remote infra-red controller capable to operate the system. It shall have Automatic Operation, Dry Operation and Fan Only Operation.
 - .2 The controller shall consist of an On/Off Power switch, Mode Selector, Silent Button (for outdoor unit), Fan Setting, Swing Louver, On/Off Timer Setting, Temperature Adjustment, "Intelligent Eye" sensor, Home Leave Operation, Powerful Operation.
 - .1 On/Off switch power the system on or off mode.
 - .2 Mode selector shall operate the system in auto, cool, heat, fan or dry operation.
 - .3 Silent operation shall lower the sound level of the outdoor unit by slowing the inverter driven fan speed.
 - .4 Fan setting shall provide five fan speeds.
 - .5 Swing louver shall adjust the airflow (horizontal and vertical) blades.
 - .6 On/Off timer is used for automatically switching the unit on or off.
 - .7 Temperature adjustment allows for the increase or decrease of the desired temperature.
 - .8 Intelligent eye provides an infrared sensor which detects movement and adjusts the temperature by 2°C up or down depending on operating mode.
 - .9 Home leave operation allows you to record your favorite temperature and airflow setting and allow the system to set back by 1.6°C.
 - .10 Powerful operation allows quick cool down or heating up in the desired space to achieve maximum desired temperature in the shortest

allowable time period.

- .3 The remote control shall perform Fault Diagnostic functions which may be system related, indoor unit or outdoor unit related depending on the fault code. Temperature range on the remote control shall be 18°C to 32°C in cooling mode and 10°C to 30°C in heating mode.
 - .4 The indoor unit microprocessor has the capability to receive and process commands via return air temperature and indoor coil temperature sensors enabled by commands from the remote control.
- .4 Outdoor Unit
- .1 General: The outdoor unit shall be specifically matched to the corresponding indoor unit size. The outdoor unit shall be complete factory assembled and pre-wired with all necessary electronic and refrigerant controls.
 - .1 Unit Cabinet
 - .1 The cabinet shall be ivory white with a finished powder coated backed enamel paint.
 - .2 Fan
 - .1 The fan shall be a direct drive, propeller type fan.
 - .2 The motor shall be inverter drive, permanently lubricated type bearings, inherent.
 - .3 The fan shall be capable of operating in “silent operation” which lowers the outdoor fan speed in either cool, heat or auto modes.
 - .4 A fan guard is provided on the outdoor unit to prevent contact with fan operation.
 - .5 Airflow shall be horizontal discharge.
 - .3 Coil
 - .1 The outdoor coil shall be nonferrous construction with corrugated fin tube.
 - .2 Refrigerant flow from the condenser will be controlled via a metering device.
 - .4 Compressor
 - .1 The outdoor unit shall have an accumulator, four-way reversing valve.
 - .2 The compressor shall have an internal thermal overload.
 - .3 The outdoor unit can operate with a maximum vertical height difference of 20 meters (66 feet) and overall maximum length of 30 meters (98 feet) without any oil traps, liquid or suction line changes.
 - .5 Electrical:
 - .1 The electrical power requirement is 208-230 volt, 1-phase, and 60 Hz power.

- .2 The voltage range limitations shall be a minimum of 187 volts and a maximum of 253 volts.
- .3 The outdoor shall be controlled by a microprocessor located in the outdoor and indoor units via commands from the infrared remote controller.
- .4 Dedicated EEVs shall be provided for capacity control.

PART - 3 EXECUTION

3.1 INSTALLATION

- .1 Prior to installation, inspect all packaging and equipment turned over from the City of Toronto storage area. Verify the equipment is undamaged and that all components required for the installation and operation of the units is included.
- .2 Prior to installation, verify fans and compressors have smooth operation and turn freely following the long storage period.
- .3 Install miscellaneous steel framing, supports, braces, etc. as may be required to hang or support equipment as specified herein, and as shown on Drawings.
- .4 Install packaged air conditioning units per manufacturer's instructions.
- .5 Provide traps for drains with at least 25 mm greater trap seal than the maximum static pressure created by unit and run all drains as shown.
- .6 Install power and control wiring between each air conditioning unit and its air-cooled condenser, including necessary power transformers.
- .7 Mount air-cooled condensers on a support bracket.
- .8 Install interconnecting refrigerant piping between each air conditioning unit and air-cooled condenser and install line mounted refrigerant specialties furnished with units. Perform system purge. Following system purge, test and fill refrigerant lines with full operating charge of refrigerant.

END OF SECTION