

PART 1 - GENERAL

1.1 REFERENCES

- .1 American National Standards Institute/American Society of Heating, Refrigeration and Air-Conditioning Engineers (ANSI/ASHRAE)
  - .1 ANSI/ASHRAE 52.2, Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particulate Size.
  - .2 ANSI/ASHRAE 127, Method of Testing for Rating Computer and Data Processing Room Unitary Air-Conditioners.
- .2 ASTM International
  - .1 ASTM C 547-11, Specification for Mineral Fiber Pipe Insulation.
- .3 CSA International
  - .1 CSA B52-05, Mechanical Refrigeration Code.
  - .2 CAN/CSA-C656-05, Performance Standard for Single Package Central Air-Conditioners and Heat Pumps.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for air conditioning components and accessories and include product characteristics, performance criteria, physical size, finish and limitations.

1.3 CLOSEOUT SUBMITTALS

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Operation and Maintenance Data: submit operation and maintenance data for air conditioning components for incorporation into manual.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Store materials off ground indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect air conditioning components from nicks, scratches, and blemishes.
  - .3 Replace defective or damaged materials with new.

1.5 WARRANTY

- .1 For computer room air conditioning 12 months warranty period is extended to 60 months.

PART 2 - PRODUCTS

2.1 DESCRIPTION

- .1 Integrated package: to CAN/CSA-C656.
- .2 System type:
  - .1 Commercial DX split-system wall mounted evaporation.
  - .2 Cooling: direct expansion.
  - .3 Condensing: air cooled.

2.2 CABINET

- .1 Indoor Unit: Plastic
- .2 Outdoor Unit: Painted Steel
- .3 Include adequate access to components for servicing.

2.3 COMPRESSORS

- .1 hermetic type, with:
  - .1 Vibration isolators.
  - .2 Motor overload and over temperature protection.
  - .3 Refrigerant service valves.

2.4 COOLING COIL

- .1 Aluminum fins, mechanically bonded to copper tubes, tested to 1.7 MPa, maximum face velocity 2.8 m/s, with condensate tray and drain connections.
- .2 Direct expansion: with separate refrigerant circuit for each compressor.
- .3 Cooling coil condensate drain pans: designed to avoid standing water, easily cleaned or removable for cleaning.
  - .1 Drain connection with deep seal trap.

2.5 FILTERS

- .1 Filters: Re-usable plastic mesh.
- .2 Mounting: in corrosion resistant racks with service access.

2.6 CONDENSER

- .1 Air cooled: free standing, welded steel unit construction, corrosion protected.
  - .1 Aluminum fins, mechanically bonded to copper tubes, tested to 3.1 MPa.
  - .2 Propeller type fans. Direct drive.

- .3 Electrical and control components housed in weather-tight access panels with electrical disconnect switch and control cable for control interconnection and designed for year round operation.
- .4 Vibration isolation: providing at least 95% isolation efficiency.
- .5 Head pressure control for low outdoor ambient of -40 degrees C operation.

## 2.7 REFRIGERANT PIPING, VALVES, FITTINGS AND ACCESSORIES WITHIN UNIT

- .1 To CSA B52.
- .2 Include for each refrigerant circuit:
  - .1 Thermal expansion valve, external equalizing type.
  - .2 Liquid sight glass with moisture indicator.
  - .3 Suction line insulation: flexible elastomeric unicellar with flame spread 25, smoke developed so, 12 mm minimum thickness.

## 2.8 ENVIRONMENTAL CONTROLS

- .1 Solid state electronic control system.
- .2 Wall - mounted wireless remote with visual display.
- .3 Controller to include following:
  - .1 Manual operation and adjustment:
    - .1 On-Off air conditioning system control.
    - .2 Room temperature set point, indicator and sensitivity adjustment controller.

## 2.9 REFRIGERANT CHARGE

- .1 Charge refrigerant system at factory, seal and test.
- .2 Holding charge of refrigerant applied at factory.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for air conditioning components installation in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate in presence of Departmental Representative.
  - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
  - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

### 3.2 GENERAL

- .1 Install as indicated, to manufacturer's recommendations, and to EPS 1/RA/2.
- .2 Manufacturer to certify installation.

3.3 EQUIPMENT PREPARATION

- .1 Provide services of manufacturer's field engineer to set and adjust equipment for operation as specified.

3.4 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

3.5 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by computer room air conditioning installation.

END OF SECTION