

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 52.2-2007, Method of Testing
General Ventilation Air-Cleaning Devices for
Removal Efficiency by Particulate Size.
 - .2 ANSI/ASHRAE 127-2007, 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 Canada Green Building Council (CaGBC)
 - .1 LEED Canada-NC-2009, LEED (Leadership in
Energy and Environmental Design): Green
Building Rating System for New Construction and
Major Renovations 2009.
- .4 CSA International
 - .1 CSA B52-05(R2009), Mechanical
Refrigeration Code.
 - .2 CAN/CSA-C656-05(R2010), 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.
- .3 Shop Drawings:
 - .1 Submit drawings stamped and signed by
professional engineer registered or licensed
in Province of Newfoundland and Labrador,
Canada.

1.2 ACTION AND
INFORMATIONAL
SUBMITTALS
(Cont'd)

- .3 Shop Drawings: (Cont'd)
 - .2 Indicate on drawings:
 - .1 Major components and accessories including sound power levels of units.
 - .2 Type of refrigerant used.
- .4 Sustainable Design Submittals:
 - .1 LEED Canada submittals: in accordance with Section 01 35 21 - LEED Requirements.
 - .2 Construction Waste Management:
 - .1 Submit project Waste Management Plan highlighting recycling and salvage requirements.
 - .2 Submit calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating that 75% of construction wastes were recycled or salvaged.

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.
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| 1.4 DELIVERY,
STORAGE AND
HANDLING
(Cont'd) | .3 | Storage and Handling Requirements: (Cont'd)
.3 Replace defective or damaged materials with new. |
| | .4 | Develop Construction Waste Management Plan related to Work of this Section and in accordance with Section 01 35 21 - LEED Requirements. |
| | .5 | Packaging Waste Management: remove for reuse or return of pallets, crates, padding, banding, and packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal and Section 01 35 21 - LEED Requirements. |
| 1.5 WARRANTY | .1 | For mini-split air conditioning 12 months warranty period is extended to 60 months. |
| | .2 | Contractor hereby warrants that computer room air conditioning will not spall or show visible evidence of cracking, except for normal hairline shrinkage cracks for 5 years. |

PART 2 - PRODUCTS

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| 2.1 DESCRIPTION | .1 | Factory engineered and packaged ductless mini-split cooling systems, complete with all options and accessories as indicated and as required for a complete and functional space cooling system. |
| | .2 | These units are to be used only as an emergency back-up system for VRF System (if out of service for repair or maintenance). |
| | .3 | Outdoor Condensing Unit: see schedule drawing for capacities and details.
.1 Ultra low-ambient cooling down to -40F with field setting and wind baffle.
.2 10 years limited parts and warranty.
.3 Exterior wall mounting. See drawings for mounting details. |

2.1 DESCRIPTION
(Cont'd)

- .3 Outdoor Condensing Unit: (Cont'd)
- .4 Weatherproof and corrosion resistant cabinet. Constructed from rust proofed panels with baked enamel finish.
 - .5 Fan-direct drive propeller fan. Motor is inverter driven with permanently lubricated bearings. Horizontal discharge.
 - .6 Outdoor coil shall be non-ferrous construction with corrugated fin tube. Metering device to control refrigerant flow.
 - .7 Inverter driven compressor with accumulator and reversing valve. Internal thermal overload on compressor.
 - .8 Units to be equipped with factory supplied, corrosion resistant wind baffle.
- .4 Indoor unit:
- .1 See scheduled drawings for capacities and details.
 - .2 Wall mounted unit with direct driven evaporator fan with permanent lubricated bearings.
 - .3 Coil to be non-ferrous, aluminum fin on copper tube heat exchanger. All joints to be brazed with silver alloy or phosphocopper.

2.2 REFRIGERANT
CHARGE

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

2.3 CONTROLS

- .1 In accordance with manufacturer's recommendations.
- .2 As indicated on drawings and elsewhere within these specifications. Refer also to Section 23 90 01 - Mechanical Control System.
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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 Run drain line from cooling coil condensate drain pan to terminate over nearest floor drain.
- 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.
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3.4 CLEANING .3 Waste Management: separate waste materials
 (Cont'd) for reuse and recycling in accordance with
 Section 01 74 21 - Construction/Demolition
 Waste Management and Disposal and Section
 01 35 21 - LEED Requirements.

 .1 Remove recycling containers and bins
 from site and dispose of materials at
 appropriate facility.

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.