PART 1 - GENERAL

1.1 REFERENCES

.1 American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE)
.1 ASHRAE 84-2013, Method of Testing Air-to-Air Heat/Energy Exchangers (ANSI approved).

.2 Canada Green Building Council (CaGBC)
.1 LEED Canada 2009 for Design and Construction, LEED Canada 2009 for Design and Construction Leadership in Energy and Environmental Design Green Building Rating System Reference Guide.

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 energy recovery equipment 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.
.2 Indicate following: Fans, fan, curves, showing point of operation, motor drive, bearings, filters, dampers, and performance data.

.4 Test Reports:
.1 Catalogued or published ratings: obtained from tests carried out by manufacturer or those ordered from independent testing agency signifying adherence to codes and standards in force.
.2 Provide confirmation of testing.

.5 Sustainable Design Submittals:
.1 LEED Canada submittals: in accordance with Section 01 35 21 - LEED Requirements.

1.2 ACTION AND INFORMATIONAL SUBMITTALS (Cont'd)

.5 Sustainable Design Submittals:(Cont'd)

.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.

.3 Recycled Content:

.1 Submit listing of recycled content products used, including details of required percentages or recycled content materials and products, showing their costs and percentages of post-consumer and post-industrial content, and total cost of materials for project.

.4 Regional Materials: submit evidence that project incorporates required percentage 30% of regional materials and products, showing their cost, distance from project to furthest site of extraction or manufacture, and total cost of materials for project.

1.3 MAINTENANCE MATERIAL SUBMITTALS

.1 Submit maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.

.2 Extra Materials:

.1 Furnish list of individual manufacturer's recommended spare parts for equipment include:

.1 Bearings and seals.

.2 Addresses of suppliers.

.3 {rovide one set of spare filters per unit.

.2 List of specialized tools necessary for adjusting, repairing or replacing.

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

1.4 DELIVERY, STORAGE AND HANDLING (Cont'd)

.2 (Cont'd) packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:
.1 Store materials indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
.2 Store and protect heat recovery equipment from nicks, scratches, and blemishes.
.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, 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.

PART 2 - PRODUCTS

2.1 GENERAL

.1 Heat exchanger, cross-flow type made of polypropylene.

.2 Unit to be self contained with all necessary controls and wiring to facilitate a single point connect. Provide disconnect and vibration isolators.

2.2 CABINET, FANS AND FILTERS

.1 .Casing: galvanized, pre-painted steel with foil faced insulation. Double wall construction.

.2 Provide full size access doors to allow for periodic maintenance and inspection. Door

2.2 CABINET, FANS AND FILTERS (Cont'd)

.2 (Cont'd)
construction, same as unit with compression type handles and resilient gaskets.

.3 Drain pans to be formed sections, recessed, fabricated from 1.2 mm stainless steel 304. Piped to nearest floor drain.

.4 Fans: centrifugal type with double blowers and motors rated for single phase 120 V. Separate Motor for the supply and exhaust fan.

.5 Filters: medium efficiency in the supply and exhaust air streams.

.6 Defrost: exhaust.

.7 Provide with exhaust defrost, remote wall control with electronic push button for; intermittent, continuous low or continuous high exchange; maintenance indicator light; and exchange indicator light.

.8 Capacity: as per schedule drawings, 60% effectiveness in heating, unit electrical requirements 120/1/60 and motorized dampers and fresh air inlet and exhaust air outlet.

.9 Standard of Acceptance:
.1 Venmar or approved equal. See drawing schedules for model numbers.

.10 Acceptable manufacturer: Trane, Carnes, Eneround, Greeenheck, Anexair, Life Breath and Air.

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 heat recovery equipment installation in accordance with manufacturer's written instructions.
.1 Visually inspect substrate in presence of Departmental Representative.

3.1 EXAMINATION (Cont'd)

.1 (Cont'd)

.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 INSTALLATION

.1 Install in accordance with manufacturers recommendations.

.2 Support independently of adjacent ductwork with flexible connections.

.3 Install access doors in accordance with Section 23 33 00 - Air Duct Accessories for access to coils, and dampers.

.4 Install vibration isolates.

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 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal 01 35 21 - LEED Requirements.

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

END