SECTION 23 72 00 – SEWAGE HEAT RECOVERY UNITS

PART 1 - GENERAL

1.01 SUMMARY

A. Provide and install a factory-assembled, self-contained, modular Sewage Heat Recovery System manufactured in North America. The system shall consist of, but not be limited to: raw sewage solids separator with water to water plate heat exchanger (Sewage SHARC), electrical controls, and accessories as specified.

B. Unit shall be shipped as a single package unless indicated in the drawings as being built in sections.

C. Perform all Work indicated by the Contract Documents with supplementary items required and necessary for proper unit installation.

D. All capacities of equipment and motor characteristics are shown on the Drawings. The capacities shown are minimum capacities.

1.02 QUALITY ASSURANCE

A. Inspect all system components and assemblies prior to shipment to the Project Site. A factory authorized representative shall perform a field inspection of the field assembled components and assemblies, and equipment installation, including all piping, electrical connections, and direct digital controls and instruments that are in the scope of manufacturing and testing of the Sewage SHARC system.

1.03 SUBMITTALS

A. Product Data:

1. Provide literature that indicates dimensions, weights, capacities, ratings, gages and finishes of materials, electrical characteristics and connection requirements.

B. Operation and Maintenance Data:

1. Submit Operating and Maintenance (O&M) Manuals with electrical requirements for power supply wiring including wiring and sequence logic diagrams for interlock and control wiring, clearly indicating factory-installed and field-installed wiring, parts list, with a description of operation and controls, and the required maintenance procedures.

1.04 DELIVERY, STORAGE AND HANDLING

A. Deliver, store, protect, and handle products to the Project Site under provisions of Division 01 and Division 20.

B. Deliver materials to the Project Site in original factory packaging, labeled with manufacturer’s identification including product thermal ratings and thickness.

C. The contractor shall be responsible for storing equipment to protect from weather and construction traffic, as well as dirt, water, chemical, and mechanical damage.

D. Rigging Performance Requirements:

1. Provide lifting lugs suitable for rigging without requiring additional support frames or rails.
2. Provide units that may be lifted without permanent deformation to the housing, base or internal components.

1.05 WARRANTY

A. Provide a two (2) year warranty on all parts. The warranty shall include the repair and replacement of any part, which fails during the specified time period. Include labor cost in all warranties.

B. The warranty date shall be 18 months from commissioning or 24 months from ship date, whichever comes first.

1.06 ON SITE INSTALLATION REQUIREMENTS

A. The SEWAGE SHARC requires installation that would include, but not be limited to electrical installation, tie in from the sewage line, connection to the building piping.

B. Provided by others: Wet well, sewage tie-in, piping from wet well to SHARC system, coring of concrete and electrical connection.

C. Fixed IP communication connection to be provided by others for remote system monitoring. This must be in place at time of installation. Warranty is void without this.

PART 2 - PRODUCTS

2.01 GENERAL

A. All materials shall meet or exceed all applicable referenced standards, federal, provincial/state and local requirements, and conform to codes and ordinances of authorities having jurisdiction.

2.02 MANUFACTURERS

A. The following manufacturers are approved in principal subject to meeting this Specification:

1. International Wastewater Heat Exchange Systems Inc.

B. Contractors and Manufacturer representatives are responsible for reviewing dimensional variances between the Contract Documents and the manufacturer’s proposed and final dimensioned equipment Drawings.

2.03 SEWAGE SHARC SYSTEM COMPONENTS

A. Wet Well / Collection Tank (if required):

1. Tank shall be either fiberglass, or concrete vault style with internal sealant coating and exterior insulation (2 inch minimum).

2. Sewage supply pumps shall be submersible solids handling type.

B. Heat Pump(s) (if required):

1. Refer to Mechanical Schedule

2. Heat pump shall be water source (water to water) type.

C. Sewage SHARC

INTERNATIONAL WASTEWATER HEAT EXCHANGE SYSTEMS INC.
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1. Comply with UL Standards.

2. Base and Floor:
   a. Construct each modular unit section on a structural base that supports all major components (i.e. sewage separator, heat exchanger, etc.) and shall be supported with structural steel members. Base and structural members shall be minimum 1/8” thick steel, with protective coating.
   b. Sewage SHARC System shall be mounted on a concrete housekeeping pad furnished by general contractor. Also, a floor drain should be located within the immediate front area of the pad.

3. Heat exchanger plate material shall be compatible with the fluid media. Plate spacing shall be as per manufacturer’s recommendations.

4. Designed to handle sewage flow and provide a useable fluid output as required in the mechanical schedules

5. Sewage source shall be specified in advance, and approved by IWHES Inc.

D. Controls
   1. Unit shall be provided with manufacturer’s control panel and instruments.
   2. Instrumentation and DDC controls furnished with the Sewage SHARC System shall be compatible with the Building Automation System (BAS) if applicable.
   3. The DDC controls at a minimum shall consist of a standalone controller, I/O board(s), and instrumentation to provide remote and local indication of entering and leaving fluid temperatures, pressures, and flow rate. The standalone controller shall also include functions for internal settings configuration, motor protection, and alarm.
   4. Customer to provide a dedicated, fixed IP internet connection for remote monitoring purposes.

PART 3 - EXECUTION

3.01 INSTALLATION
   A. Installation shall meet or exceed all applicable federal, provincial/state and local requirements, referenced standards and conform to codes and ordinances of authorities having jurisdiction.
   B. All installation shall be in accordance with manufacturer’s published recommendations.
   C. Follow the equipment manufacturer’s instructions for handling and installation, and setting up of piping for maximum efficiency.
   D. Provide adequate spacing and access for cleaning and maintenance of the SHARC system as well as any filters.
   E. Provide all necessary control wiring as recommended by the manufacturer of the SHARC system.
3.02 TESTING

A. Prior to an integrated test and Start-up of this unit, a factory-authorized field service representative is to perform the following:

1. Verify that the unit has specified piping and valves installed.
2. A full inspection of the assembled unit to confirm the correct rotation of motors.
3. To test and adjust controls and interlocks.
4. Set and verify initial set points on controls and instruments.
5. Perform required final performance test measurements and record for verification by the Engineer prior to final approval and acceptance of the ERU.

3.03 TRAINING

A. Provide services of manufacturer's technical representative for four hours to train and instruct Owner about the operation and maintenance requirements of SHARC System and its energy recovery components.

END OF SECTION 23 72 00