

- E. Chiller shall have sound properties to that conform to local jurisdiction “Prohibited Sound Levels”, using basic noise reduction techniques including un

- D. Provide vertical discharge direct driven low speed propeller type condenser fans with high volume blades, and extended discharge air stacks and fan guards. Equip with roller or ball bearings with grease fittings extended to outside of casing.
- E. Provide fan motors with permanently lubricated ball bearings and built-in current and overload protection.
- F. All damaged coil fins shall be straightened or replaced.
- G. Condenser coil shall not have more than 15 fins per inch.

2.6 ENCLOSURES

- A. House components in welded steel frame with galvanized steel panels with weather resistant, baked enamel finish.
- B. Provide unit mounted starters and disconnects in weatherproof panel provided with full opening access doors. Provide mechanical interlock to disconnect power when door is opened.
- C. All screws and bolts shall be tightened to minimize noise.

2.7 HEAT RECOVERY CONDENSERS (Requires written permission from Florida Tech)

- A. Provide factory installed or approved heat recovery condensers of shell and tube type, seamless or welded stainless steel construction with cast iron or fabricated steel heads, seamless copper tubes or red brass tubes with integral fins, rolled or silver brazed into tube sheets. Factory approved third party heat recovery equipment shall not void the manufacturer's warranty.
- B. Design, test, and stamp refrigerant side for 450 psig working pressure in accordance with ANSI/ASME SEC. 8
- C. Provide 450-psig safety relief valves on condenser shell.
- D. Design, test and stamp water side for 150 psig working pressure in accordance with ANSI/ASME SEC. 8.

2.8 REFRIGERANT CIRCUIT

- A. Provide refrigerant circuits, factory installed and piped. Provide for each refrigerant circuit:
 - 1. Liquid line solenoid valve.
 - 2. Filter dryer (replaceable core type).
 - 3. Liquid line brass-body sight glass and moisture indicator.
 - 4. Expansion valve sized for maximum operating pressure.
 - 5. Charging valve.
 - 6. Insulated suction line.
 - 7. Discharge line check valve.
 - 8. Compressor discharge and suction service valve.
 - 9. Condenser pressure relief valve.

2.9 CONTROLS – by chiller manufacturer including translator/interface module compatible with Owner's Energy Management Control System (EMCS) hardware and software. For details refer to design drawings with controls schematics and sequence of operations.

- A. On chiller, mount weatherproof, galvanized steel control panel to include single main disconnect for single point power feeder and factory wiring to internally powered starters and controls.
- B. For each compressor, provide across-the-line starter, non-recycling compressor overload, starter relay, and control power transformer. Provide manual reset current overload protection.
- C. Provide the following safety controls arranged so that operating any one will shut down machine and require manual reset:

3.2 MANUFACTURER'S FIELD SERVICES

- A. Prepare and start systems under provisions of Section 01600 and 15990.
- B. Supply service of factory-trained representative to install heat recovery system, perform testing, dehydration and charging of machine, start-up, and instruction on operation and maintenance to Owner's satisfaction.
- C. Supply initial charge of refrigerant and oil.

3.3 DEMONSTRATION

- A. Provide systems demonstration.
- B. Demonstrate system operation and verify specified performance. Refer to Section 15990.

3.4 SCHEDULE

- A. Provide a schedule on the drawings to include the following data:
 - 1. Manufacturer
 - 2. Model Number
 - 3. Cooling Capacity
 - 4. Evaporator
 - a. Water Flow
 - b. Entering Water Temperature
 - c. Leaving Water Temperature
 - d. Pressure Drop
 - e. Fouling Factor
 - 5. Condenser
 - a.