a base for each chiller. Concrete pads shall have steel reinforcements and shall be in accordance with the Building Code.

510.8.2 Support. When a floor-mounted chiller is placed on a concrete pad, cast-anchor-bolting shall be inserted into the pad.

510.9 Access and Service. Removable panels and/or access doors shall be provided for the inspection and service of its internal parts and components.

510.10 Refrigerants. Full operating charge of refrigerant and oil shall be provided prior to start-up. The type and amount of refrigerant shall be limited per Table 5-6.

510.10.1 Refrigerant Circuit. Each chiller refrigerant circuit shall be provided with the following:

(1) Thermal expansion valve.
(2) Liquid line solenoid valve.
(3) Insulated suction line.
(4) Filter dryer.
(5) Liquid line sight glass.
(6) Suction and discharge valves.

510.11 Evaporator. Shell and tube design having seamless roller copper tubes expanded into the tube sheets shall be provided. The evaporator shall be designed, tested, and marked at a working pressure of 16bar (225 psi) in the refrigerant side and 10bar (150 psi) in the water side. One water pass shall be provided with a series of internal baffles. When the evaporator is provided with multiple compressor units, independent multiple refrigerant circuits having gasketed evaporator heads shall be provided.

510.11.1 Insulation. The evaporator shall be insulated with flexible unicellular insulation not less than 13mm (0.5 in.), and shall have a maximum K-value of 0.28.

510.12 Temperature Control. The evaporator shall be provided with a water drain connection and bulb wells for sufficient temperature control and low-temperature limitations.

510.13 Condenser. Condensers shall be provided with the following items:

(1) Configurated copper fins mechanically bonded to seamless copper tubing.
(2) Permanently lubricated ball-bearing motors with overload protection.
(3) Protective grille over air discharge.
(4) Baked phenoy/coating on fins.
(5) Direct or belt driven, statically and dynamically balanced propeller fans.
(6) Protective grilles over exposed coil faces.

510.13.1 Testing. During leak test, cooling condenser coils shall withstand a pressure of 10bars (150 psi) without leaking for a period of not less than 30 minutes. During pressure test, the coils shall withstand a pressure of 31bar (450 psi) without leaking for a period of not less than 15 minutes.

510.13.2 Multiple Compressor. When multiple-compressor units are used, multiple circuited condenser coils shall be provided.

510.13.3 Miscellaneous. Condenser integral subcooling circuit shall be provided with liquid accumulators.

510.14 Compressors. The following items shall be provided for compressors:

(1) Direct drive producing not less than 1,750rpm.
(2) For multi-cylinder reciprocating compressors, crankcase heaters (semihermetic or hermetic) shall be provided.
(3) Minimum steps of capacity control provided by cylinder unloading and/or compressor staging, based on return water temperature.
(4) Vibration isolators inside chiller.
(5) Oil pump, oil filter, oil level sight glass, and oil charging valve.

510.15 Chilled Water Piping. Chilled water piping shall be made and installed in accordance with Chapter 6 of this code.

510.16 Efficiency. The chiller efficiency rating (IPLV) shall comply with the minimum efficiency requirements as stated in ARI standard 550/590 or equivalent International Standard(s) approved by the Authority Having Jurisdiction.