SECTION 23 62 00
REFRIGERATION
Design Standard

PART 1 GENERAL

1.1 PURPOSE

A. The refrigeration systems are an essential element of the mechanical cooling systems. This design standard has the purpose of creating a consistent application of refrigerant system requirements throughout the San Mateo County Community College District therefore achieving a standard of quality for maintenance, reliability and energy efficiency throughout all renovation and new building projects.

PART 2 PRODUCTS

2.1 Design and specify work to include materials, installation and testing of refrigeration devices for air conditioning applications for a complete and operable system.

A. All refrigerant systems shall have refrigerant systems that meet all LEED requirements for refrigerant use with regards to ozone depletion and global warming.

B. Refrigerant liquid and suction piping shall be type L, hard drawn ACRS tubing.

C. A nitrogen purge shall be maintained when soldering all joints. Copper-to-copper joints shall be made with a brazing alloy similar to Sil-Fos. Copper-to-brass joints shall be made with silver solder.

D. Main piping fittings for dryers, sight glasses, expansion valves, and controls shall be flare or compression-type fittings.

E. Prior to being charged with refrigerant, the system shall be evacuated to 500 microns and held for at least 24 hours under this vacuum.

F. Double-suction risers shall be employed on systems with capacity reduction and where required by lift.

G. Precharged lines are not acceptable.

H. Isolation valves shall be provided at alladditional components added the the refrigeration units.

I. Installations shall be complete with dryers, sight glass, and thermostatically-controlled solenoid valves for pump down operations.

J. Where defrost units are required, they shall be operated electrically with adequate space provided to replace defrost elements. Defrost shall not be limited to electrical units. In larger installations, hot gas defrost is preferred.

K. Installations shall be provided with necessary protective devices including, but not limited to, electric overload devices, low-suction pressure cutouts (manual reset), high head pressure cutouts (manual reset), low-lube oil pressure cutouts (manual reset), oil traps, crankcase heaters, and anti-recycling.

L. Condensing systems shall be designed for low ambient conditions, using variable-frequency fans or fan staging when required for 24/7 cooling.

M. Condensing systems shall be provided for corrosion resistant when installed at Skyline College

2.2 APPROVED MANUFACTURERS

A. Condensing Units:

1. Carrier
2. Bryant
3. Lennox
4. Rheem
5. Trane

B. Mini Split Systems:

1. Carrier
2. Friedrich
3. Mitsubishi
4. Sanyo
5. Daiken

C. Computer Room Units:

1. Liebert
2. Stulz
3. APC

PART 3 EXECUTION

3.1 SUBSTITUTES ALLOWED?

Yes, if performance and quality equivalency can be evidenced.

3.2 ASSOCIATED DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS

23 05 10 – HVAC Piping Design Standard
23 05 29 - Hangers and Supports for HVAC Piping and Equipment Design Standard
23 05 53 - Identification for HVAC Piping and Equipment Design Standard

END OF SECTION