

Design Standard

Packaged Compressor and Condenser Units

Purpose:

Packaged compressor and condenser units are essential elements of HVAC systems. This design standard has the purpose of creating a consistent application of refrigerant system requirements throughout the East Side Union High School District, therefore achieving a standard of quality for maintenance, reliability and energy efficiency throughout all renovation and new building projects.

Design Standard:

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

- All refrigerant systems shall have refrigerant systems that meet all LEED requirements for refrigerant use with regards to ozone depletion and global warming.
- Refrigerant liquid and suction piping shall be type L, hard drawn ACRS tubing.
- 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.
- Main piping fittings for dryers, sight glasses, expansion valves, and controls shall be flare or compression-type fittings.
- Prior to being charged with refrigerant, the system shall be evacuated to 500 microns and held for at least 24 hours under this vacuum.
- Double-suction risers shall be employed on systems with capacity reduction and where required by lift.
- Pre-charged lines are not acceptable.
- Isolation valves shall be provided at all specialties.
- Installations shall be complete with dryers, sight glass, and thermostatically-controlled solenoid valves, and valved to allow pump down operations.
- 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.
- 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.

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

Approved Manufacturers:

- Condensing Units.
 - Carrier
- Mini Split Systems
 - Carrier
- Computer Room Units
 - Liebert
 - Stulz
 - APC

Substitutes Allowed:

Yes, if performance and quality equivalency can be evidenced.

Associated Design Standards and Construction Specifications

- Division 23 HVAC Design Standards
- 23 05 00 – 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
- 23 06 00 – HVAC Equipment Design Standard

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