Environmental requirements

Environmental elements

The following environmental elements can affect HP BladeSystem c-Class product installation.

Humidity level

Maintaining proper humidity levels in the computer room is essential for reliable equipment performance. Humidity levels outside the recommended range of 25 to 45 percent, especially if these levels are sustained, lead to equipment damage and result in equipment malfunction through several mechanisms.

High humidity levels enable galvanic activity to occur between dissimilar metals. Galvanic activity can cause high resistance to develop between connections and lead to equipment malfunctions and failures. Extended periods of humidity levels greater than 60% have also been shown to adversely affect modern printed circuit board reliability. High humidity can also adversely affect some magnetic tapes and paper media.

High humidity levels are often the result of malfunctioning facility air conditioning systems. High humidity can also be the result of facility expansion in excess of air conditioning system capacity.

Humidity levels below the minimum recommended value can also have undesirable effects. Low humidity contributes to high ESD voltage potentials. ESD events can cause component damage during service operations and equipment malfunction or damage during normal operation. Low humidity levels can reduce the effectiveness of static dissipating materials and have also been shown to cause high speed printer paper feed problems.

Low humidity levels are often the result of the facility heating system and occur during the cold season. Most heating systems cause air to have a low humidity level, unless the system has a built-in humidifier.

ASHRAE and representatives of IT equipment manufacturers recommend a range of 18°C dry bulb with a 5.5°C dew point temperature to 27°C dry bulb with a 5.5°C dew point temperature. Over this range of dry bulb temperature with a 5.5°C dew point, the relative humidity varies from approximately 25% to 45%.

For more information on humidity levels, see the ASHRAE website (http://www.ashrae.org/).

Dust and pollution

Dust and microscopic particles in the site environment adversely affect computer equipment. Airborne abrasive particles can cause bearing failures in disk drives, tape drives, and other mechanical devices. Dust may also blanket electronic components and printed circuit boards, causing premature failure because of excess heat, humidity buildup, or both.

Conductive metallic particles can cause power supply and other electronic component failures. A build-up of these metallic particles over time can cause short circuits on the densely packed circuit boards common in modern electronics. Use every effort to ensure that the environment is as dust- and particulate-free as possible. See "Metallic particulate contamination (on page 16)."