

applications

Water Treatment Plants/ Piping Galleries



General Design and Application Considerations:

Water treatment and waste water treatment facilities benefit from a dry environment by eliminating condensation on cold influent pipes, pumps, electrical switch gear and building structure, especially in northern climates where influent temperatures remain cold much of the year. These ground water and lake water temperatures are often much colder than air dewpoints, which can result in condensation on the outside of the pipes, valves and electronic controls in the plant.

Dewpoint control to prevent condensation of ambient humidity on pipe surfaces carrying cold water or effluent is the critical issue within these plants. Lake water in northern climates can be as cold as 35°F and as warm as 65°F. Condensation can also cause a loss of protective coatings and increases annual maintenance costs. To prevent condensation, the air around the cold pipes must have a dewpoint temperature less than the water temperature inside the pipes.



A single packaged unit is often sufficient to dehumidify an entire facility. Weatherproof double-wall construction can simplify installation by allowing a number of options for unit location.

Environmental Standards or Requirements:

While there are no absolute standards of temperature and humidity conditions to be maintained within a water treatment plant, and especially within a piping gallery, the obvious design target is to dehumidify the environment to a dewpoint sufficiently lower than the coolest surface temperature within the plant. Generally dehumidifying the space to at least 5°F below the coolest surface temperature will be sufficient. Industry "rule of thumb" indicates that a range of 60 to 80°F and 35 to 45%RH would generally be acceptable. However, the most accurate method of control is to maintain a differential between the pipe surface temperature and the space air dewpoint.

Self-contained microprocessor condensation control automatically compares space or pipe gallery humidity to influent temperature to efficiently adjust for changing conditions. Such DDC controls are available for this very purpose.

**For more information
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