

Dry Up! Reduce Mold and Mildew in Locker Rooms

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by Todd Bradley

Moisture is a fact of life in locker rooms from high school sports through major arena sporting events. The shower room, equipment and storage areas are ripe with smells and odors from showers, damp equipment and uniforms. Molds and bacteria that are thriving in the high-humidity environment of the locker room are to blame for the smells and odors. Mold spores occur naturally in the environment. The spores proliferate on surfaces in areas of high humidity. Bacteria growth is similar. Both mold and bacteria growth can be reduced or eliminated by removing the one of the key factors needed for growth. Studies have suggested that most mold growth can be minimized by controlling relative humidity to levels below 40-60% RH.

Modern locker rooms have utilized dry desiccant dehumidification to maintain humidity levels for the locker rooms. By reducing the relative humidity in the locker rooms, the facility can dry out after high activity. The dry air will reduce or eliminate growth of mold spores while allowing the room and equipment to dry.

The application of a desiccant dehumidifier is appropriate to this application because of its ability to remove large amounts of water vapor below a 35F dew point. By providing very dry ventilation air, we can "deep-dry" a facility to draw water out of the building, materials and equipment.

Maintaining only temperature control can cause the indoor humidity to rise. Internal uses, such as the showers, hot tubs and other facilities, further add to high humidity in the room.

Current codes require increased amounts of ventilation air, which must be treated properly to control humidity. ASHRAE (American Society of Heating, Refrigeration and Air Conditioning Engineers) recommends standards that have been adopted by most building codes in the United States. The recommended typical required outdoor air ventilation rates are .5 SCFM per square foot of locker and dressing room area.

Typical internal moisture loads for a recreational locker room:

Wet equipment and uniforms 5.0 lbs/hr

Personnel 3.0 lbs/hr

Wet shower and hot tub evaporation 10.0 lbs/hr

Infiltration through doors and cracks 3.0 lbs/hr

Total internal typical moisture load 21 lbs/hr of water vapor per typical hour

Additional water vapor can also be brought in through unconditioned ventilation air.

To improve the locker room climate, a desiccant dehumidification unit can be installed to deep-dry the facility by lowering the humidity of the locker room. The main objective of this process is to provide a healthy environment that will keep uniforms, equipment and the interior facility dry. Mold odors from mildew growth are reduced or eliminated. The unit can be controlled by a simple humidistat to maintain the humidity and deep dry the locker room during nighttime or low-use periods.

A desiccant system can be added to condition most facilities. A Model SDH-126 dehumidification unit, rated at 1,000 SCFM, is a perfect solution for most locker rooms. Manufactured by Concepts & Designs of Owatonna, Minn., the unit is a packaged system that uses electricity or natural gas to

reactivate the rotating desiccant wheel. As the desiccant wheel rotates, it slowly picks up moisture from the process air stream and transfers the moisture to the reactivation air stream, where it is exhausted outdoors. The low-humidity discharged air is circulated throughout the facility. This low dew-point air has the ability to deep dry the facility.

The system provides a dry, healthy environment for the locker room and will provide customers with a better impression of the facility.

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