

Mold and mildew protection project yields multiple benefits.

When American Constructors began a 106,000 sq. ft. elementary school for Round Rock School District, near Austin, TX, there was a general concern about the development of mold and mildew during the project.

American Constructors had built many schools in fast growing central Texas. Based on years of experience, the company set goals to maintain targeted temperature and humidity levels during construction without using the newly installed HVAC system. With outside air temperatures about 30°F during winter, the climate controlled space inside was to be kept near 60°F and relative humidity was to average below 30% RH.

“Many insurance carriers no longer will insure contractors against the effects of mold, mildew and water related damage,” said construction project manager, Corey Taylor. “Our goal was to reduce moisture in the building during construction, the cause of mold problems.”

The problem

Variations in levels of humidity and temperature in the Austin area—especially throughout the winter months—can create challenges for contractors. Using the traditional method of direct fired heaters, it is often difficult to maintain conditions that minimize mold or mildew. As a result, humidity rises allowing condensation to form on surfaces throughout the building interior, such as metal studs, and wallboard. If this happens and moisture is trapped inside walls during finishing work, the building becomes a candidate for mold problems.

High humidity levels inside the building also slows the drying time of materials like joint compound, fireproofing and paint. “Unless joint compound is sufficiently dry, we can’t sand or paint. And if the moisture content in concrete is not sufficiently low, we can’t apply the floor coverings,” Taylor said.



Indirect fired heaters combined with dehumidifiers were used to keep working conditions comfortable while eliminating moisture inside the construction project. As a result, the construction materials such as joint compound, concrete and substrates, dried quickly allowing work to progress at a rapid pace.

MOISTURE CONTROL SERVICES Mold Prevention Case Study: Round Rock School



THE MUNTERS ADVANTAGE

During construction projects, climate control can be the key to preventing dangerous bacterial growth from developing inside unheated buildings. Contractors also can greatly benefit when dry air allows work to proceed faster. During the Round Rock project American Constructors benefited from the following advantages:

- The threat of mold growth was eliminated.
- Controlled climate provided consistent working temperatures.
- Various construction activities were completed faster.
- The contractor avoided using the new HVAC system.
- The Munters rental system was easily adapted as needs changed.

The solution

To solve the moisture problem and preclude the possibility of mold growth, American Constructors turned to Munters. After reviewing construction plans, Munters recommended a temporary dehumidification system to be phased-in as work progressed. The system was a combination of desiccant dehumidifiers, indirect fired heaters, and fans used to move the warm, dry air through a distribution network of light weight flexible duct.

The Munters system was a great improvement over using heat from direct fired heaters or the HVAC system, because it dried the air, as well as heated it. The dry air precluded the possibility of condensation forming on structural materials, usually the principal cause of dangerous mold growth in new buildings.

The Munters system minimized dust throughout the construction site by introducing outside air rather than recirculating inside air.

Having an alternative source of heat eliminated the need for early start-up of the building HVAC system. This was preferred by the building engineers, who specified no use of the HVAC system until the building was turned over to the owner.

According to Taylor, maintaining consistent temperature and humidity levels through use of the HVAC system during construction in winter can prove difficult. "In the Austin area, running the heating unit to control humidity is tricky because there are many days when it is not cold and heat makes it uncomfortable to work. As a result, the workers open the windows," Taylor said. "If the heat isn't running, the indoor areas become humid. Should a cold front arrive, that humidity condenses on the floor and walls."

Initially, the construction firm only sought to deter the possibility of mold growth during construction. However, the



To eliminate condensation during construction, Munters created a temporary humidity and temperature control system using dehumidifiers and indirect fired heaters. As a result, building interiors such as insulated wall cavities (above) remain dry precluding the growth of mold.

project team soon discovered, that removing moisture shortened drying times of concrete, wallboard compound and substrate surfaces. With predictable drying rates, project managers could schedule painting, installation of ceramic tile and flooring material without weather induced moisture delays.

"Working with moisture laden materials sends humidity upward, but then the dehumidifiers quickly reduce it. For example, after wallboard texturing, the humidity climbed from 30% RH to 70% RH because of the moisture in the compound, but by the next morning, the dehumidifiers had lowered the conditions to under 50% RH, and then returned humidity to the maintenance level of 30% RH," Taylor said.

Taylor added that the architect's concern about moisture and its affect on finished products was completely addressed by Munters, and hassles with subcontractors and manufacturers over the effective date of warranties was avoided.

The benefits

An Engineered System

Munters brings 20 years of experience and superior engineering expertise to each project. A system to meet the demands for humidity control in the building was carefully designed and specified as part of the initial recommendation.

A Flexible Approach

The Munters system was partly installed in November, when some of the building was enclosed. As the entire structure was closed in, Munters expanded the system to meet growing humidity and temperature control needs. As a result, there was no cost for unnecessary equipment on site.

Mold/Mildew Control

Removing moisture eliminates mold growth and eventual contamination of the building. By dehumidifying throughout the project, mold concerns were never an issue.

Faster Work

Materials such as paint, drywall compound, surface texturing, epoxy and concrete all dried at their maximum rate. This allowed work to proceed faster and scheduling to be dependable.

Engineering Concerns Met

The building HVAC system did not have to be employed as part of the construction project. As a result, it could be commissioned when the building was turned over to the customer according to manufacturers recommendations.

Materials Problems Avoided

Architect's concerns with moisture problems in finishing materials were avoided. All specs could be maintained during application of the floor covering and other installations.



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