



**CONSTRUCTION
DRYING**

Dehumidifiers Provide Quick 'Cure'



**Property Damage
Restoration**



**Temporary
Humidity Control**



**Water Damage
Restoration**



Nothing can be as frustrating for a building contractor as watching building materials such as concrete and wallboard slowly dry when the clock is ticking against the project's deadline. Such was the situation faced by Birmingham, AL. -based Robins & Morton, one of the largest healthcare contractors in the nation.

Robins & Morton sought to control humidity and reduce building material drying times for two major, simultaneous expansion projects at Carolinas Medical Center in Charlotte - Levine Children's Hospital and the Intensive Care Unit (ICU) Surgical Tower - to keep construction on schedule during North Carolina's cold and damp winter months.

Construction of the 245,000-square foot, 12-story Levine Children's Hospital addition, which is expected to accommodate the projected growth of up to 100,000 children in the Charlotte community during the next decade, began in early 2005. The facility features a three-story open atrium lined with windows and, when completed, will hold 234 beds.

The Levine Hospital is designed to be kid-friendly and family-friendly, and will offer patient rooms with extra beds for parents, a children's diagnostic center, playrooms on every floor and a 13-bed rehabilitation pavilion. The facility also will house several of the region's "firsts," such as the first day hospital, cardiac intensive care unit and 24-hour pediatric emergency department.

The ICU Surgical Tower is a 190,000 square foot, four-story addition on top of the Carolinas Medical Center's existing surgery tower. The new facility will contain ICU patient rooms, nursing support, family support and mechanical systems. The bulk of the addition - floors nine, 10 and 11- will house 87 ICU beds.

Completing the construction of both projects on time required a key component - precise humidity and temperature control during the interior finishing stage. All construction materials inside the structures absorb moisture, including wallboard, fireproofing, lumber, block and concrete. Unless that moisture is reduced to acceptable tolerances, the condition can delay the construction timetable or, even worse, cause performance failure of some material or lead to the formation of mold.

To avoid such delays, Levine Children's Hospital senior project manager, Scott Merritt, and ICU Surgical Tower project manager, Jeff Fox, sought a method to create an environment and climate at the work site to ensure construction would proceed at an optimum pace. They contacted Polygon and presented the challenge.

Dan Kaidel, Business Development Specialist at Polygon, recommended temporary installation of two Polygon 9000 high capacity desiccant dehumidifiers - one for each expansion project - in combination with several heaters and blowers.



A flexible air distribution system was woven through stairwells and floors to reach all areas that required humidity control.



Dehumidification keeps major simultaneous hospital expansion projects on schedule throughout winter.



“It was essential that we develop a plan to keep building materials such as concrete slabs free of moisture to facilitate faster drying,” said Kaidel. “Aside from drying materials to speed work, there is another benefit to dehumidification - preventing mold growth. By the very nature of the construction process, especially during wet winter months, the risk of mold growth is always present.”

Polygon personnel worked with Robins & Morton to configure the Polygon systems to meet the design loads, temperature and humidity levels specified for the project.



Dehumidification helped to keep construction of the facility’s three-story open atrium on schedule.

Fast-Tracking Construction of Levine

A Polygon 9000 dehumidifier, one heater and two blowers arrived at the Levine Children’s Hospital expansion project in cool, damp November 2006. The equipment was stationed on the ground next to the building and ducted into the first floor of the facility. The flexible air distribution system was also weaved through stairwells to reach higher floors that required humidity control.

“Our main concern was the removal of moisture inside the building,” said Merritt.

To make sure cold, humid weather didn’t affect construction, Robins & Morton requested that temperatures inside the hospital building remain between 55 and 75 degrees and relative humidity between 25 and 30 percent during the interior finishing stages.

The state-of-the-art climate control equipment helped workers adhere to the construction timetable, and even allowed them to accelerate the process. That was critical when a previous phase of the project had pushed work two months behind schedule.

“When installing a very complicated curtain wall system, we faced some issues that were outside of our control,” said Merritt. “It was important that we push the other parts of the job to catch up. With Polygon’s help, we were able to expedite much of the drywall portion of the work to overcome some of that lost time.”

All Polygon equipment at the hospital was removed in March when the building’s internal HVAC system was operational.

Reducing ‘Cure’ Times at Surgical Tower

Polygon equipment was delivered to the ICU Surgical Tower construction site in early January when the building was fully enclosed and protected from the external elements. Similar to Levine, the equipment was placed on the ground outside the building and a flexible air distribution system weaved up the side of the building to pipe dry air into the new upper floors added to the structure. Once inside, air was directed to specific work areas using disposable plastic tubing.

Dehumidification was combined with heaters to battle the freezing temperatures, keeping the building warm when temperatures dipped. Climate control also played an essential role during the installation of the facility’s wallboard.

“We were installing a paperless wallboard similar to sheetrock in the surgical tower during the winter,” said Fox. “We had to tape and apply mud to it, and controlling the temperature and humidity levels in the facility kept it from freezing and cracking.”

All equipment was removed in the spring when the interior finishing stages were near completion.

Both Merritt and Fox attest to the benefits of dehumidification during construction: “Desiccant dehumidification played an important role in the on-time completion of both projects,” added Merritt. “The progress was accelerated; drying cut days out of the drywalling effort.”

Fox added: “We were very pleased with the performance of the units, their easy installation and the periodic monitoring by Polygon technicians.”

Both projects were completed on schedule.