



# Collier County C.I.D. Building

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Naples, Florida

*Rooftop Product Solves Long-standing  
Humidity Problem*

*“The people in this  
building are starting to  
forget my name, and I’m  
happy about that.”*

In this unusual way, Kurt Jokela describes what he likes about a new system for humidity control in a Collier County office building in Naples, Florida. Jokela is a senior HVAC technician for the Collier County Department of Facilities Management. He is referring to the fact that he now receives very few calls about comfort issues at the county’s Criminal Investigation Division (CID) Building in Naples. Previously, he says, such calls were a daily occurrence. “People got to know my name because they called so often, and I was often in the building trying to solve humidity-related comfort problems.”





*Trane 100 percent fresh air handler, Model FADA, maintains a temperature-neutral discharge-air condition.*

*“The automation system makes a tremendous difference to us in being able to control building comfort conditions.”*

According to Collier County Facilities Manager Daniel Rodriguez, the resolution of the problems with this specific building has been a major success. His department is responsible for 660 county-owned or -operated buildings, ranging from small storage buildings to major office facilities. In Collier County, a high priority is placed on effective management of county buildings, and one of the major elements is monitoring and control of the indoor environment in these facilities. One important tool in building management is a Tracer Summit™ central building automation system to allow observation and adjustment of conditions in the buildings. The Collier County facilities-management staff has access to the Tracer Summit system through a Web server, allowing them to observe and adjust building operations from remote locations. Rodriguez says, “The automation system makes a tremendous difference to us in being able to control building comfort conditions.”

#### **Acquires Former Bank Building**

Recently, the county acquired a former bank building to use as an

office for the CID. It is a 35,000-square foot single-story structure with a central atrium. This building was constructed in 1980, and the county took over occupancy before the summer of 2001. In the first year of their occupancy, the CID personnel were disappointed with the comfort level in their new building. “They had come from an older facility, and expected some improvements in building comfort.”

The CID employees complained about uneven cooling in the building, and especially about high humidity and related indoor air quality (IAQ) problems. Rodriguez agreed that conditions in the building were unsatisfactory, and arranged a study of the building by Alan Wozniak from Pure Air Controls Inc. of St. Petersburg. “This firm and Mr. Wozniak are well known in Florida,” says Rodriguez, “for their expertise in analyzing IAQ problems.”

#### **Ventilation and Humidity Control Needed**

The Pure Air Controls study indicated two major problems — inadequate ventilation and insufficient ventilation air humidity control. The existing cooling system consisted of an air-cooled chiller and five rooftop air handlers, with VAV distribution. The challenge with this building, as is often the case in South Florida, is that increasing ventilation levels alone usually exacerbates humidity control problems rather than solving them. The climate here is characterized by a very long season of extremely high humidity levels. An effective solution was needed.

Collier County Government has a very stringent building standard for new buildings. The standard is outlined in County Vertical Standards that establish performance standards for various classes of buildings. It was the goal of Rodriguez and his team to meet the Vertical Building

Standard for the comfort system in the CID Office Building. To do so it would be necessary to maintain relative humidity levels below 50 percent. Using the findings from Pure Air Controls, and the goal of meeting the County Vertical Standards, Rodriguez approached Southwest Florida Trane for their recommendations.

Rodriguez says the County has used Trane for many years because of their product warranties, responsiveness to service needs, and the excellent performance of the Trane equipment they have used. Mike Brousil, the account manager from the local Trane office, took on this challenge and made specific recommendations.

#### **Chiller Replacement**

He suggested replacing the existing air-cooled chiller. According to Brousil, this machine was 15 years old and had condenser leaks and other problems. In recent years, it had become a reliability issue. A new model would be more reliable and would produce lower-temperature chilled water, allowing for better humidity control. The equipment selected was a Trane Series R™ Model RTAC, rated at 155 tons. This chiller easily fit in the enclosure where the early machine had been, so very little piping work was required.

Brousil’s second recommendation was to add a Trane rooftop, makeup air-handler, treatment unit with a



capacity for 100 percent of the makeup air upstream of the air handlers. This Trane product is designed for these exact situations. By pretreating the outside air, the existing air handlers would receive large volumes of temperature-neutral outside ventilation air, already filtered and dehumidified. This could be blended with the building air

circulated by the air handlers, thus meeting the ventilation requirement. This solution also improves the performance of the existing air handlers, which have become somewhat degraded over the past 20 years. These are going to be replaced under the county's planned replacement program in the near future.

**Temperature Neutral Conditions**

This Trane, 100 percent fresh air handler, Model FADA, features a fan, filter module, and a DX coil for dehumidification, with the dehumidification compressor heat used for reheat to maintain a temperature-neutral discharge-air condition. An additional compressor circuit and coil provides cooling as needed, and this unit is also

designed to provide additional heat to the incoming air if needed. The goal is to maintain a temperature-neutral condition for ventilation air.

In this case, the heat section has electric resistance heat. According to Brousil, the heat will be needed for a very limited number of hours each year, usually an hour or less during the morning warm-up period on some "winter" days of southwest Florida.

**Comfort Calls Plummet**

The pretreated air then goes to the existing rooftop air handlers for distribution throughout the building via standard ducts and VAV terminal boxes. Using the dedicated makeup-air rooftop unit ensures that both the desired building humidity levels and ventilation rates can be maintained.



*New 155-ton, Trane Series R™ air-cooled chiller, Model RTAC, replaced an older machine that had become unreliable.*

*The equipment was installed in the spring of 2003, and immediately proved itself as a viable solution.*



***The air-cooled chiller was located in a compact, existing enclosure near the rear of the building.***

The equipment was installed in the spring of 2003, and immediately proved itself as a viable solution. According to Jokela, the number of comfort-complaint calls plummeted, and his almost-daily trips to the building to respond to comfort problems were ended.

Facilities Manager Rodriguez notes that his department is very aware of the need for energy conservation, and that systems are selected and installed to perform at optimum efficiency levels. "But," he says, "Taking care of our customers' comfort is primary. That was the goal at the CID building." He points out that the Tracer Summit system helps them meet that goal. The other key is to anticipate problems, to repair or replace equipment before it fails." As an example, Kurt Jokela says that when they inspect air handlers and similar equipment, "We don't inspect belts to see if they have any remaining life. We replace them, period. That solves lots of problems."

At the CID building, the practice of analyzing the problem then promptly taking the necessary steps to solve it, has paid off. As Jokela says, "Now people can come to work here and do their job. They don't need to worry about the comfort system. Now, neither do we."



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